

#### SYMPOSIUM AGENDA

8:00 am	Registration, Galleria Rail Transit Exhibits, Hawaii Suites					
9:00 am	Honolulu Rail Transit Symposium 2009, Pikake Room Welcome by Emcee - Ed Nishioka					
	Message from – The Honorable Daniel K. Akaka, United States Senate					
	Welcome by Mufi Hannemann, Mayor of Honolulu					
9:20 am	Project Overview - Scott Ishikawa					
9:40 am	<b>William Millar,</b> American Public Transportation Association Rising gas prices spotlight the essential role of public transit. Mr. Millar provides a national view of transit ridership and new hot-button issues we should be looking for.					
10:10 am	Joni Earl, Sound Transit Ms. Earl presents some of the rail construction challenges and solutions she's tackled as the CEO of Seattle's transit agency and the exciting opening of the new light rail LINK from downtown Seattle to SEA-TAC Airport.					
10:40 am	<b>Dan Doyle,</b> former Deputy Minister of Transportation, Vancouver, British Columbia  Vancouver's elevated SkyTrain is a hallmark of transportation in British Columbia. Mr. Doyle shares insights into creating and extending the Millennium Line, enlightened by his 35 years of experience with the B.C. Ministry of Transportation.					
11:10 am	lan Mulcahey, Gensler Effective Transit Oriented Development is Ian Mulcahey's specialty. His Master Plans are found around the world, highlighted by Canary Wharf along the elevated London Docklands Light Rail.					

11:40 am	Lunch Break (50 min)				
12:30 pm	<b>Chatham Olive,</b> former leader of the Sierra Club, Charlotte As the President of the Sierra Club in Charlotte, NC, Mr. Olive championed the area's LYNX light rail system as green transportation: an energy-efficient traffic alternative that reduces air pollutants from cars and trucks.				
1:00 pm	<b>Wellington Webb,</b> former Mayor of Denver It's a question every growing city must answer: with limited resources, how do you address today's transportation challenges for while planning for the future? Denver found its answer in the Fast Tracks program, which was championed by Mr. Webb.				
1:30 pm	Keynote speaker: Richard Simonetta, Valley Metro, Inc. Delivering more than a million rides a month, the new Phoenix-Mesa-Tempe Valley Metro light rail line in Arizona is the country's latest transit success story. Mr. Simonetta covers Valley Metro's ridership, economic development, construction, environmental features and more.				
2:30 pm	Break (20 min)				
2:50 pm	Panel Discussion Moderator: Alan Wulkan Mr. Wulkan is one of the nation's leading experts on creating transportation infrastructure to match the needs of a city's business, community and environment. He moderates an in-depth panel session featuring the symposium speakers.				
4:20 pm	Program ends				
6:00 pm	Exhibits close				





#### Learn all about trains! Fun for the entire family!

Tuesday, June 23, 2009 • 8:00 AM – 6:00 PM Neal Blaisdell Exhibition Hall

Join us at the state's most exciting educational exhibit about rail transit. See informational displays of trains used around the world. Learn about the lasting environmental and economic benefits rail transit has generated in other cities and how Honolulu will benefit.







#### Why are trains good?\*

- No Traffic trains will travel on tracks above the ground and won't get stuck in traffic
- No Waiting trains will come and go every 3 to 10 minutes
- No Waste one train can carry up to 300 people

\*Project's Draft Environmental Impact Statement





Rapid Transit Division - Department of Transportation Services - City and County of Honolulu - 1099 Alakea Street, 17th Floor, Honolulu, HI 96813 - www.honolulutransit.org



**Project Overview** 

June 23, 2009



# HONOLULU RAIL TRANSIT



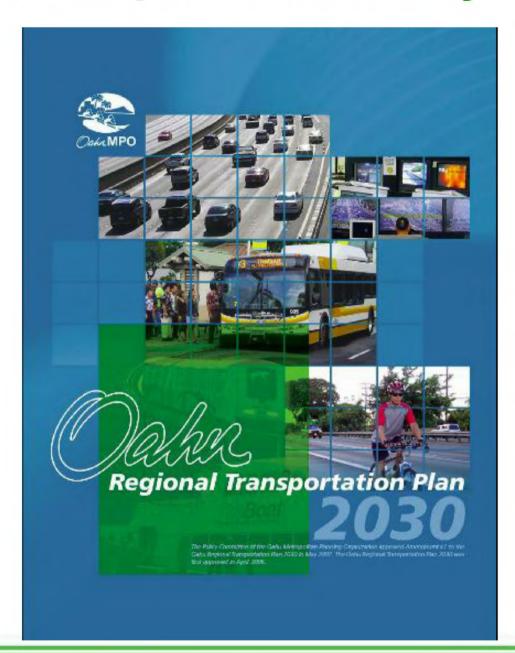


# Planning for the Future O'ahu in 2030

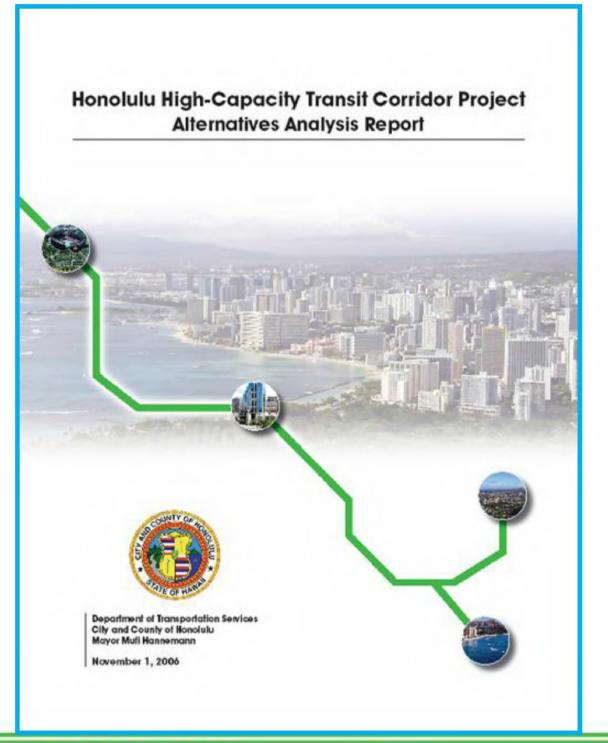
- 200,000 more residents than in 2005 (22% more people)
- 100,000 more jobs than in 2005 (21% more jobs)
- 750,000 more daily trips than in 2005 (27% more trips)

#### **Multi-Modal Options to Improve Mobility**

- Highway Capacity **Expansion**
- Traffic Engineering **Improvements**
- Pedestrian and **Bicycle Projects**
- **Expansion of TheBus**
- Fixed Guideway **Project**









#### Four Alternatives

- No Build
  - No Major Transit Improvements
- Transportation System Management
  - Expanded Bus Service
- Managed Lane
  - Buses on Managed Lanes
- Fixed Guideway
  - Alignment Options
    - Various Routes
    - Elevated, at-grade, underground



# City Council Selection December 22, 2006

 By a vote of 7 to 2 the City Council selected Fixed Guideway in an exclusive right-of-way

COUNCIL 12/22/06 CR-508 ADOPTED. BILL 79, CD2, FURTHER AMENDED ON THE COUNCIL F TO CD2, FD1, HOWEVER, BILL 79, CD2, FD1, FURTHER AMENDED TO BILL 79 FD2 (FINAL #2), AND SUBSEQUENTLY PASSED THIRD READING, AS AME (BILL 79, CD2, FD2 (FINAL #2)					ED TO BILL 79, CI	D2,				
							2, FD1 (NORTH-SO ED AND SUBSEQU			
	APO	Υ	CACHOLA	Υ	DELA CRUZ	Υ	DJOU	Ν	GARCIA	Υ
	KOBAYASHI	Y	MARSHALL	N	OKINO	Υ	TAM	Υ		

#### **Decisions Made**

- Choice of Mode
  - Fixed Guideway in Exclusive Right-of-Way
- Choice of Alignment
  - Initially East Kapolei to Ala Moana Center
  - Ultimately Kapolei to UH Mānoa and Waikīkī
- Choice of Vehicle Technology
  - Steel Wheel on Steel Rail "Light Metro"

## Why Not Surface Light Rail?

- Slower operating speed less than 20 mph vs. 30+ mph for elevated
- 36% higher O&M cost per passenger mile
- Reduces highway capacity
- More localized traffic congestion
- More property acquisitions and relocations
- Greater impacts to cultural/archeological resources

## **Elevated Guideway Simulation**





## **Elevated Guideway Simulation**





#### What could it look like?











### What could it look like?











# Travel Times from Kapolei

Destination	Travel Time
Pearl Highlands	14 minutes
Airport	26 minutes
Kalihi	32 minutes
Downtown	38 minutes
Ala Moana Center	42 minutes

#### How much will it cost to build?

	Millions of 2008 Dollars
Estimated Construction Cost	2,100
Design / Construction Contingency	555
Construction Subtotal	2,655
Right-of-Way	150
Vehicles	295
Professional Services	795
Project Reserve	230
Capital Cost	4,125
Finance Charges	380
TOTAL COST	4,500



### Sources and Uses of Funds

	Millions of Inflated \$
GET Surcharge Revenues	4,050
FTA New Starts Funds	1,385
TOTAL REVENUE	5,435
Capital Cost	4,930
Finance Charges	505
TOTAL COST	5,435

## **Operating & Maintenance Cost**

 Rail operating & maintenance cost, after fares, will be about 2-3% of the City's annual operating budget, an amount that can be accommodated without an increase in taxes

A bus + rail system costs less to run than carrying the same number of people on a bus-only system

## **Projected Economic Benefits**

Will create about 10,000 jobs a year in

Construction,
support
services,
retail, and
other
industries



#### **Traffic Benefits**

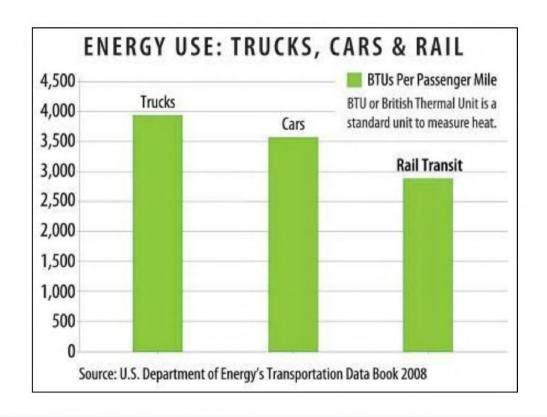
- Rail will reduce future traffic delay by over 20%
- Rail will remove more than 30,000 cars from our roads each day
- One 300-passenger train can take 200 vehicles off our roads





#### **Environmental Benefits**

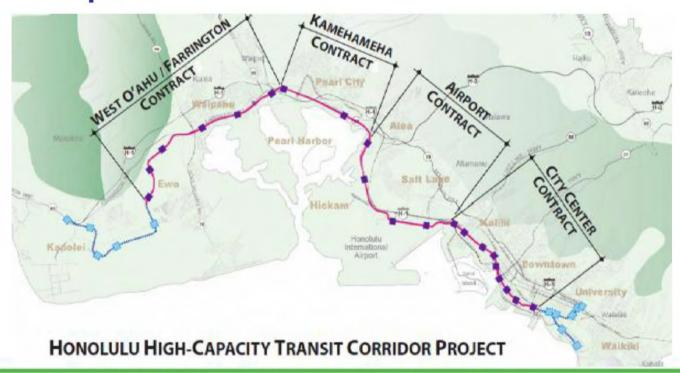
 Electrically powered trains use less energy per passenger mile than cars





## **Moving Forward**

- Late Summer 2009: Release of Final EIS
- Fall 2009: FTA issues Record of Decision
- Fall 2009: Award design/build contract for first phase





#### What's Next...

- Spring 2011: Full funding grant agreement with the federal government
- Late 2012: Initial service in Waipahu
- Late 2018: Start full service between East Kapolei and Ala Moana



## **Sound Transit**

On the Move...

Sound Transit's Link light rail

Honolulu Rail Symposium June 23, 2009



# Sound Transit: the regional mass transit provider







#### Sound Move - 1996

#### High Capacity Regional Transit

- ST Express bus
- Sounder commuter rail
- Link light rail
- Community connections

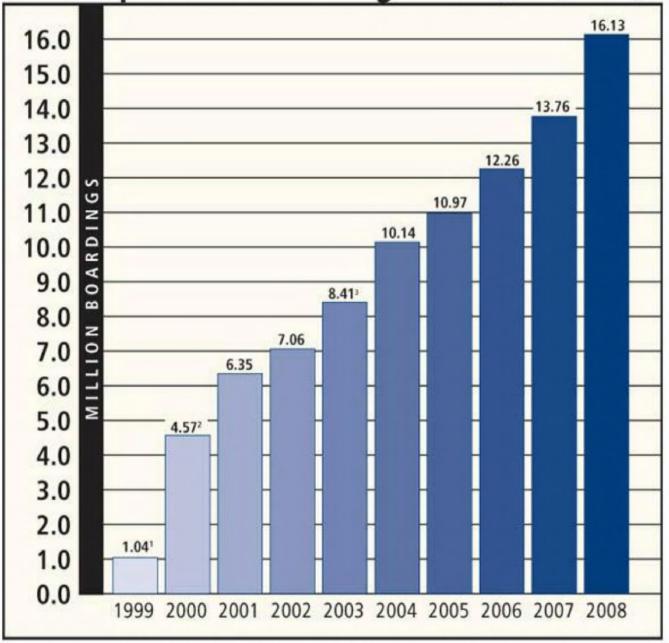
Complement local transit service Improve HOV system Common fare system



#### **ST Ridership**

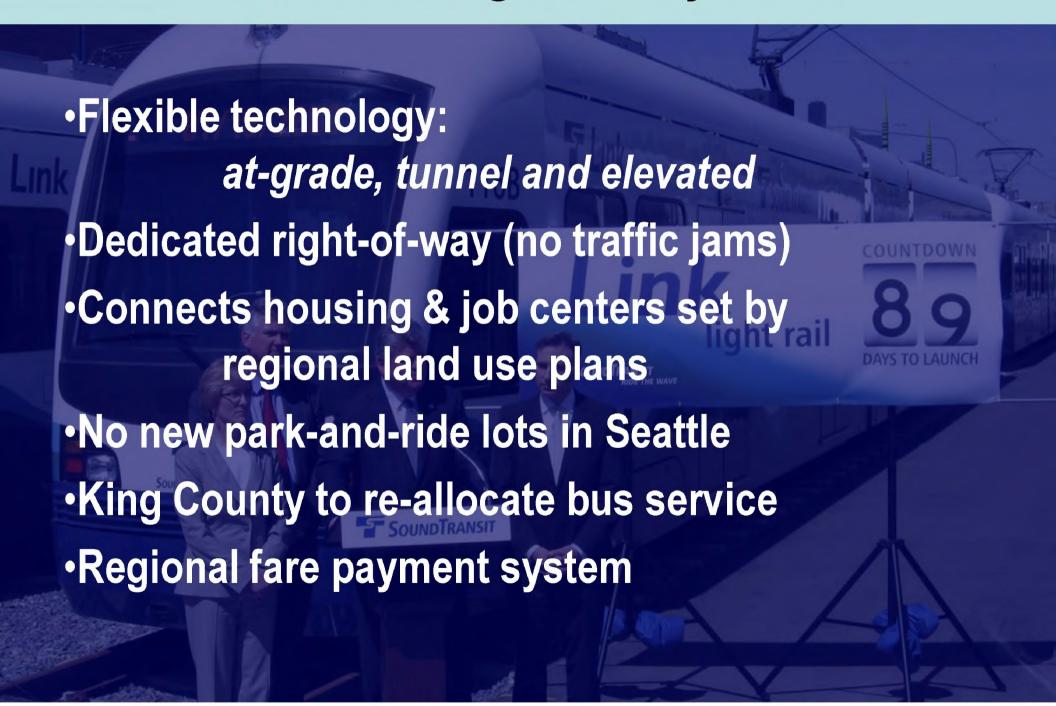
- •56,000 avg. daily boardings in 2008
- •up 17% from 2007
- Sounder commuter rail: July '08 up 38% compared to July '07
- +21,000 avg. daily boardings in 2009 with Central Link

Ridership from 1999 through 2008 (4th Quarter)



- 1) ST Express starts in Sept. of 1999, no Sounder or Link service
- 2) Sounder starts in Sept. 2000
- Tacoma Link starts in Aug. 2003

## ST's Link light rail system



## ST's light rail vehicles



#### Northgate North : Roosevelt Link Brooklyn University of Washington (520) University Link Capitol Hill Westlake University Street Seattle Pioneer Square Q International District/Chinatown Stadium C **Mount Baker** Link operations Beacon Columbia City Initial Segment Othello Rainier Beach Tukwila Tukwila International Blvd Burien **Airport Link** SeaTac/Airport O S 200th Extension South 200th

Map Key

Link light rail

■■○■■ Link light rail

mi Link light rail

future extensions

and stations (opens 2009)

and stations

(opens 2016)

# Sound Move Link light rail plan



AR00081568



#### **Central Link**

#### **OPENS JULY 18!**

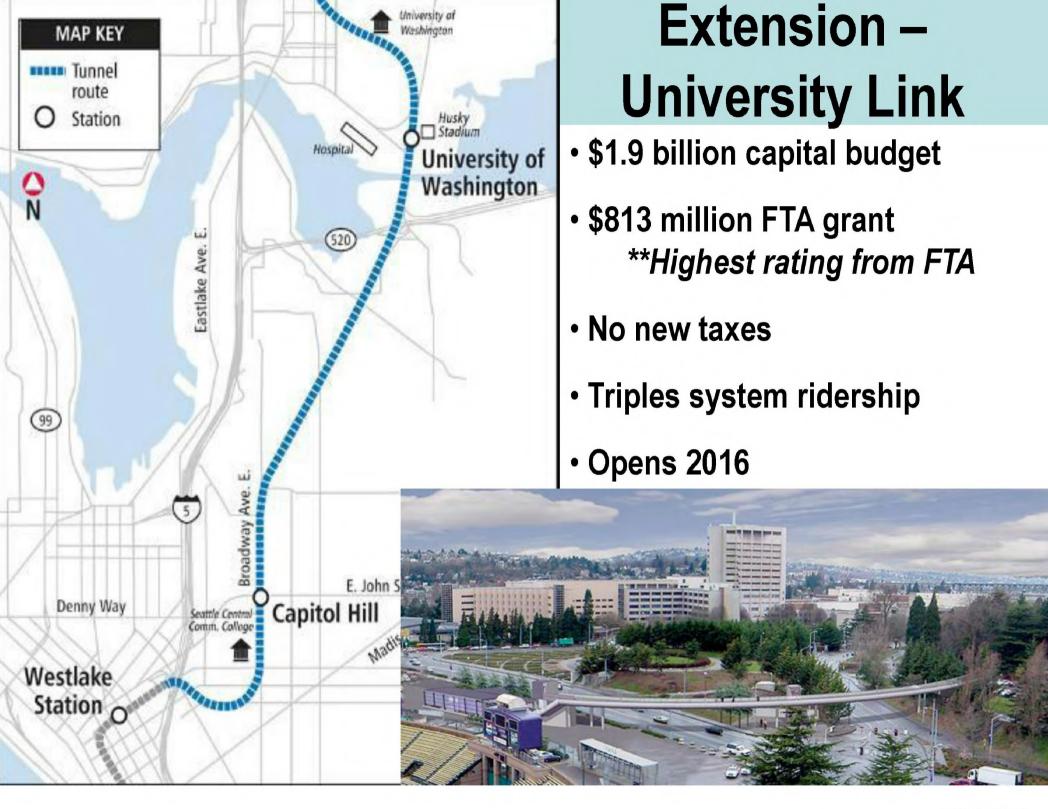
- •14 miles, 12 stations
- •\$2.4 billion capital budget
- •Funding:
  - •0.3% MVET
  - •0.4% retail sales
  - •\$500 million FTA grant
- Operating Budget
  - \$21.8 million for 2009
  - •\$38.7 million for 2010



# Extension – Airport Link

- Opens December 2009
- •2 miles, 1 stations
- •\$269 million capital budget





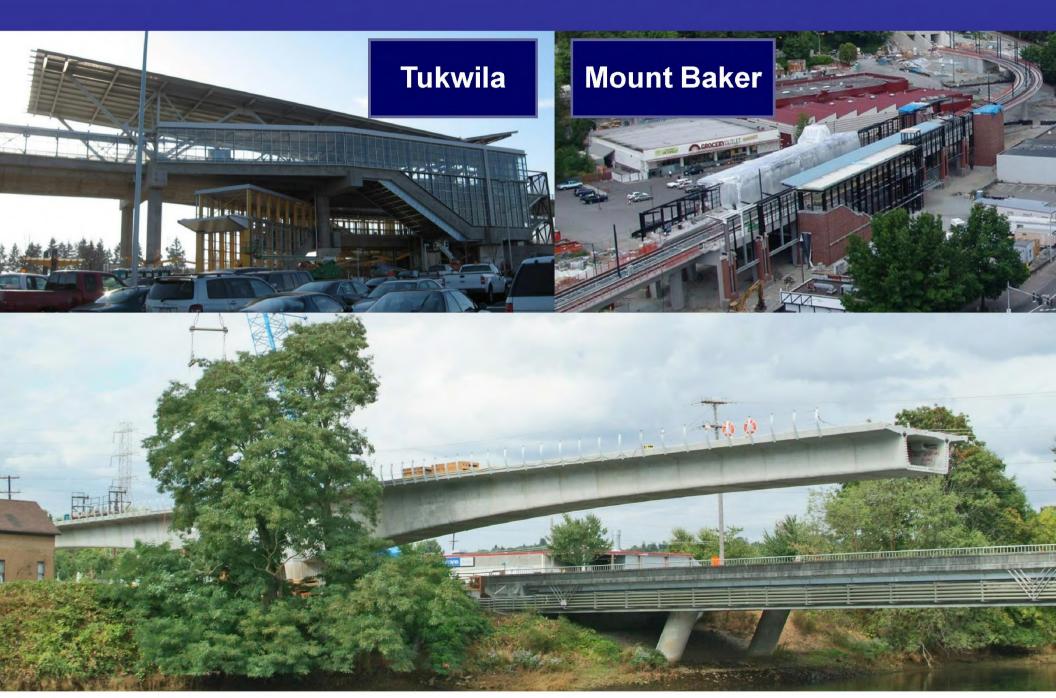
## **Central Link – tunnel portions**



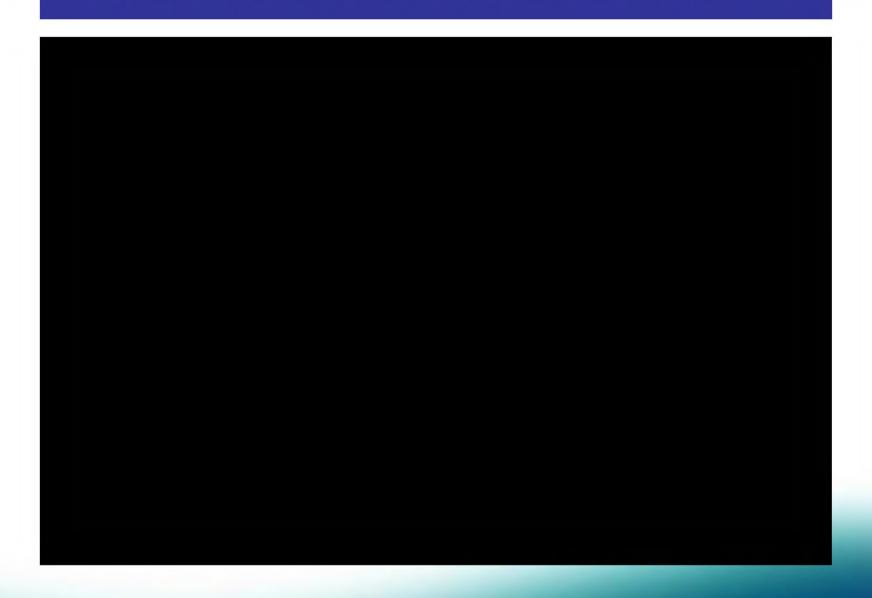
## **Central Link – at-grade portions**



# **Central Link – elevated portions**



#### **Tukwila International Blvd Station**

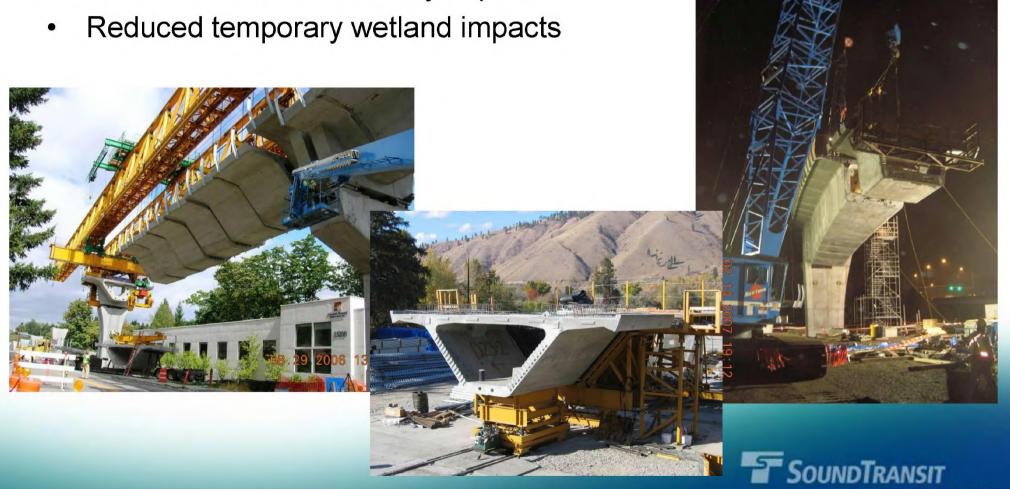






## **Pre-Cast Segmental Technology**

- \$23 million savings (about 10% of total contract value)
- 8 months reduced construction period (about 20% duration)
- Reduced traffic and railway impacts





# Tukwila & Airport



### Project management issues





Link I

Raiı

Construction Alert #173/2006

New roadway paving has begui the streets and sidewalks alo

Roadway paving involves the fo

- 1. Shift the traffic to a three la on the east side of the road
- 2. Demolish the old roadway vibration and noise which residence. It will generall you should not be alarme
- 3. Final drainage structures at

SOUNDTRANSIT

**Link Light Rail** 

Southcenter Blvd/S. 154th St **Construction Alert** 



Construction Alert - # 50

Street Closure/Night Work

Starting as rans parency as ra

Southcen Boulevard will be closed to through traffic for 4717 to International Blvd/SR ACC COUNTAINTITY on the weather ACC COUNTAINTITY on the

Final drainage structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will need to inter/exit at 4 to two s. You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Structures at You will not be able to phrough the Public Struc

you may have to use alter property. An RCI-H repres make arrangements for alte

- 5. As the concrete hardens (c pavement. This is a time se concrete cutting may hap when the concrete is place temperature, etc.,. Your pa the temporary noise is appr
- 6. As the roadway cures to su the curbs, gutters, sidewalk
- 7. Property will be restored to will be graded (sloped) to n grass seed is placed, and p be installed
- 8. After one side of the street will be repeated for the opp
- 9. Please call the Hotline is th regarding this process.

Work Area

Sound Transit 24-hour Construction Hotline: (888) 298-2395

Sound Transit 24-nour Construction Hottine: 1-888-298-2395

## Building rail in a recession



#### Everett Mukilteo Lynnwood Mountlake Terrace Northqate Vestlake Iniversity Street Downtown Bellevue King Street Station Bellevue Mercer Island Legend Light rail - north / south Tukwila International Blvd SeaTac/Airport Highline CC termodal Connection Redondo/Star Lake Kent Auburn Tacoma Sumner

#### Voters approve expansion

- •\$18 billion in projects
- •36 miles new light rail = 55-mile regional system
- 19 new light rail stations
- 21 cities connected by light rail
- 358,000 daily riders by 2030
- 8,000 direct construction jobs &
   69,000 indirect jobs created
- CO<sub>2</sub>e reduced by 100,000 tons / yr.



## Link light rail future expansion



# How to keep moving forward





## Thank you.







## **Metro Vancouver Rapid Transit**

**Presented by:** 

**Dan Doyle** 

Director, Canada Line Rapid Transit Inc.

Executive Vice President,
Vancouver Organizing Committee for the 2010 Olympic and
Paralympic Winter Games

#### **Metro Vancouver**

- Canada's 3<sup>rd</sup> largest metropolitan region
- Strategically located
- Moderate climate, and quality of life make it a highly desirable location
- One of the most livable places in the world.

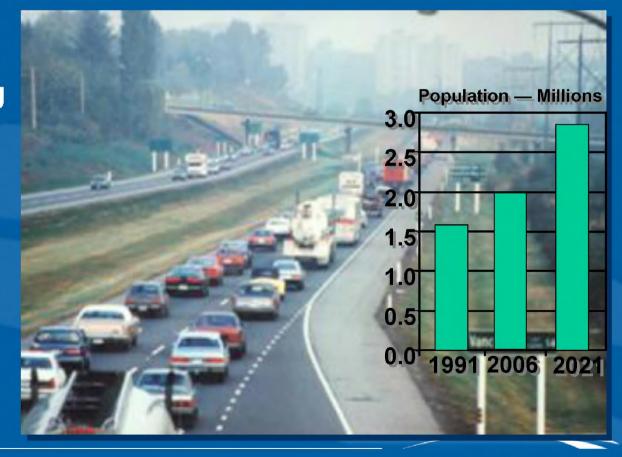






#### **Metro Vancouver**

- Population is currently over 2.2 million and increasing
- Traffic congestion is increasing
- No freeways connecting into downtown



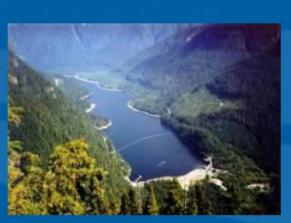


CANADA LINE

# Metro Vancouver Regional Growth Strategy



**Provide Framework** for Future Growth



Protect Green Zones



**Build Complete Communities** 



Increase Transportation Choices



### **SkyTrain System**

Longest automated & unattended transit system

Over 21 years of successful safe operation

#### 49 kilometers

- elevated 42 km
- at grade 5 km
- tunnel 2 km

33 stations

210 vehicles



mostly elevated above the roadways and avoids traffic congestion





#### Why SkyTrain? — Urban Fit

Low noise and vibration

**Electric operation** 

Minimal visual impact (unobtrusive elevated guideways)

Fast, frequent service of short length trains enable small stations







CANADA LINE

## Why SkyTrain? - Design Flexibility

#### Flexible alignment design

- steep grades 6.5%
- small turning radius 70m

Capable of expansion to meet future capacity demands





### Why SkyTrain? - System Performance

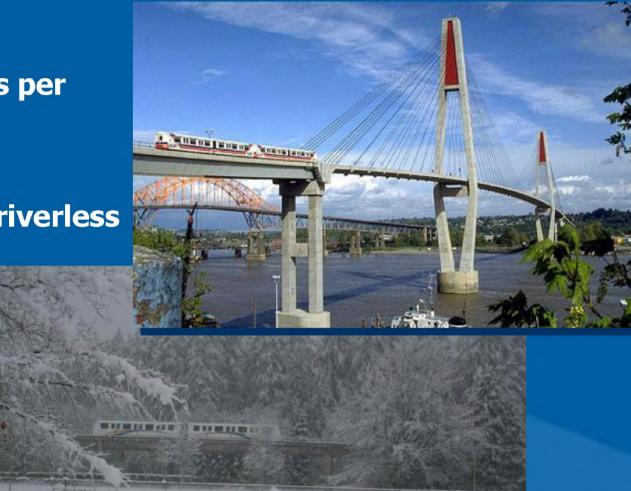
Intermediate capacity
(10k to 30k passengers per
hour per direction)

Fail-safe automated, driverless

unattended operation

Reliable

All weather operation

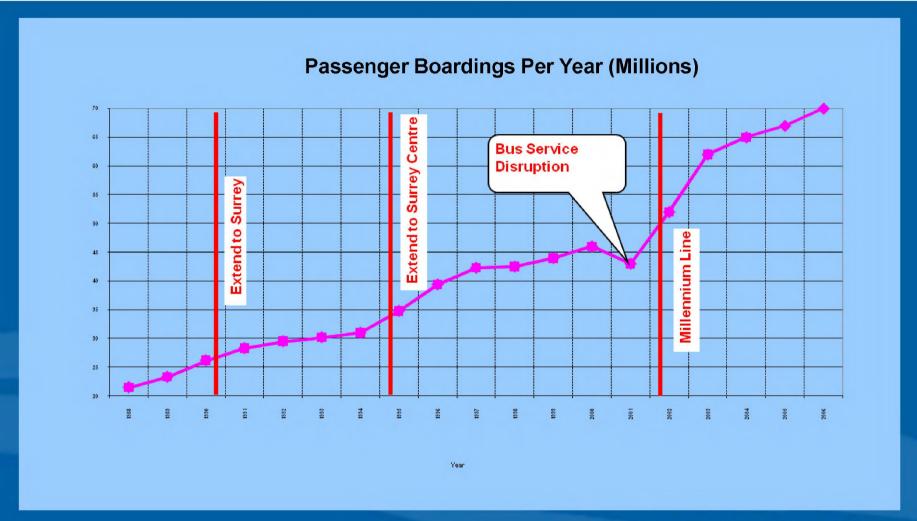




CANADA LINE



## SkyTrain – Ridership





SkyTrain ridership increased by over 300% in the first 20 years



# SkyTrain Growth 1987 - 2007

	1987	2007	Δ%
Distance	21 km	49 km	233%
Stations	15	33	220%
Cars	114	210	184%
Employees	~300	~540	180%
Car-kms	12.9 M	34.9 M	270%
Annual boardings	20 M	71 M	355%
Weekday Boardings	65,000	240,000	369%





#### **Automatic Train Control**

#### **Benefits of Automatic Train Control:**

- Safety: ATC minimizes routine human error. SkyTrain ATC has proven safety record with 160 million train-kms in 23 years of operation with zero accidents occurring under ATC control
- Shorter Station Platforms: reduced station and land costs through operation of shorter trains at higher frequency
- Delay Recovery: spare trains can be inserted into service immediately from strategic storage points to reduce or eliminate downstream gaps; delayed trains can be reassigned to maintain spacing





#### **Automatic Train Control**

#### **Benefits of Automatic Train Control:**

- Reliability: Train Availability for SkyTrain has been consistently at 98% On-Time Scheduled Trains and Avg. 95% since commencement of operations in 1985;
- Flexibility: Allows for Shorter Trains at higher frequency at the same operating Costs. Train every 2 min at peak hour, every 3 min in mid-day and evenings, every 4 min late night
- Travel Time: Automated speed control is accurate and consistent together with fully separated guideway allows for shorter overall travel times.





#### **SkyTrain - Expo Line**

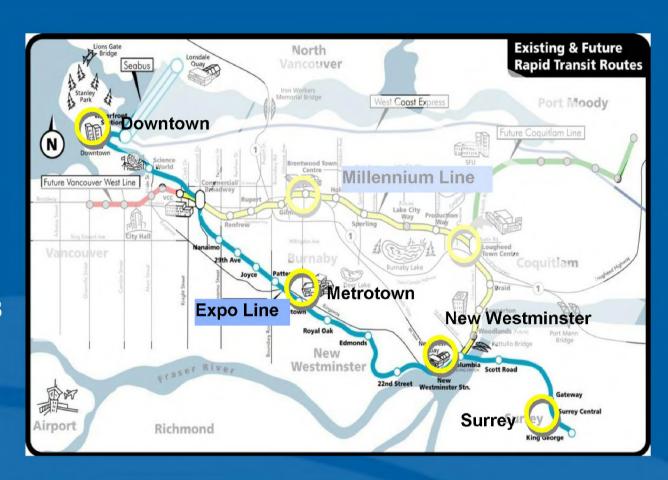
**Entered revenue service** in 1986

#### **Expo Line**

- 29 kilometers
- 20 stations
- 150 vehicles

**Connects 4 town centers** 

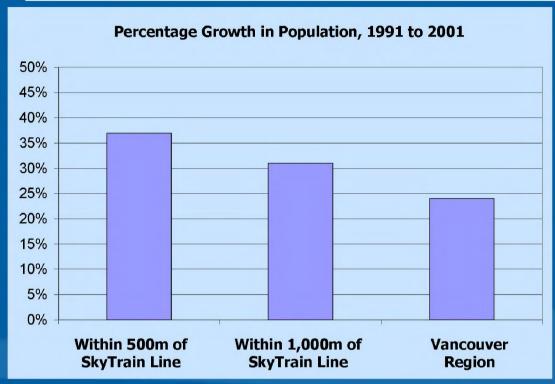
Peak time ridership
•14,000+ passengers
per hour per direction







#### **Shaping Urban Density**



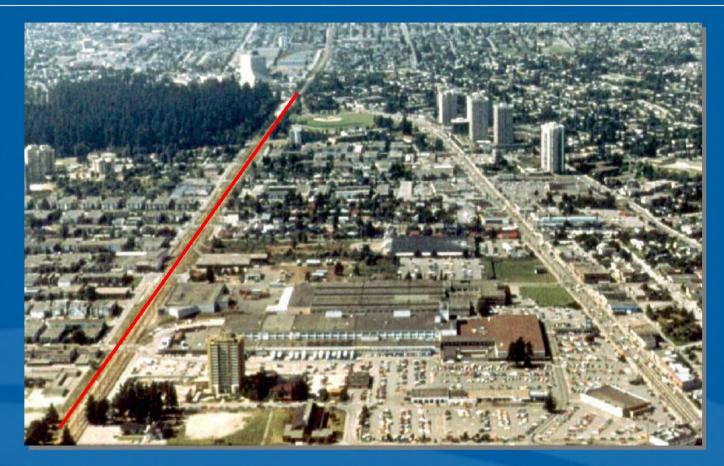








# Metrotown Before SkyTrain (early 1980s)



Before SkyTrain was built, city planners had decided to establish Metrotown as a regional and city town center



# Metrotown 20 Years After SkyTrain

Today Metrotown is a true mixed use, transit-oriented development in the precise location where planners wanted it to happen:



Over 13,000 residential dwelling units within walking distance (300m) of the station Three interconnected shopping centers and office complexes









#### **SkyTrain - Millennium Line**



Alignment was controversial and there were predictions the new line would be a white elephant with negligible ridership

**Entered revenue service in 2002** 

#### **Millennium Line**

- 20 kilometers
- 13 stations

**Connects 2 town centers** 

Peak time ridership = 5,000 + passengers per hour per direction and rising at over 5% per year without fleet expansion





#### **Millennium Line**

Built in large part to shape the urban development in Greater Vancouver and create a series of dense regional town centers

Although only in service for 6 years, adjacent development has been significant

As designed by city plans and zoning decisions, rapid growth is occurring at predetermined locations







#### **Gilmore Station**



Since the Millennium Line entered service high rise condominiums have been constructed with retail and over 1,000 residential units

Growth adjacent to Gilmore station is expected to continue. In fact the station roof is designed to be easily disassembled to allow Gilmore to be incorporated into a new commercial complex.



#### **Canada Line**

#### "Fixed Points"

Technology:	Automated Light Metro System
Length of Line:	19 km
No. of Stations (2009):	16
Estimated Daily Riders (2010):	100,000
Water Crossings:	2 bridges + 1 tunnel
Equivalent Road Capacity:	10 lanes
Project Cost:	\$2.054 billion







# Future Development at Aberdeen Station



## No. 3 Road Vision







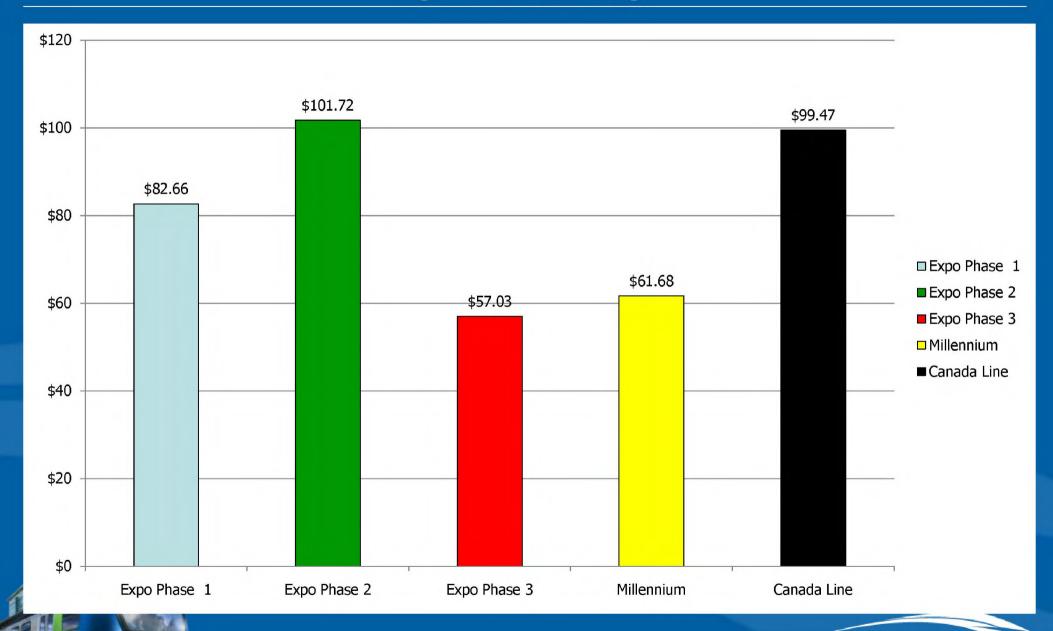




CANADA LINE

## **Capital Costs/Kilometer**

(\$2003 million)

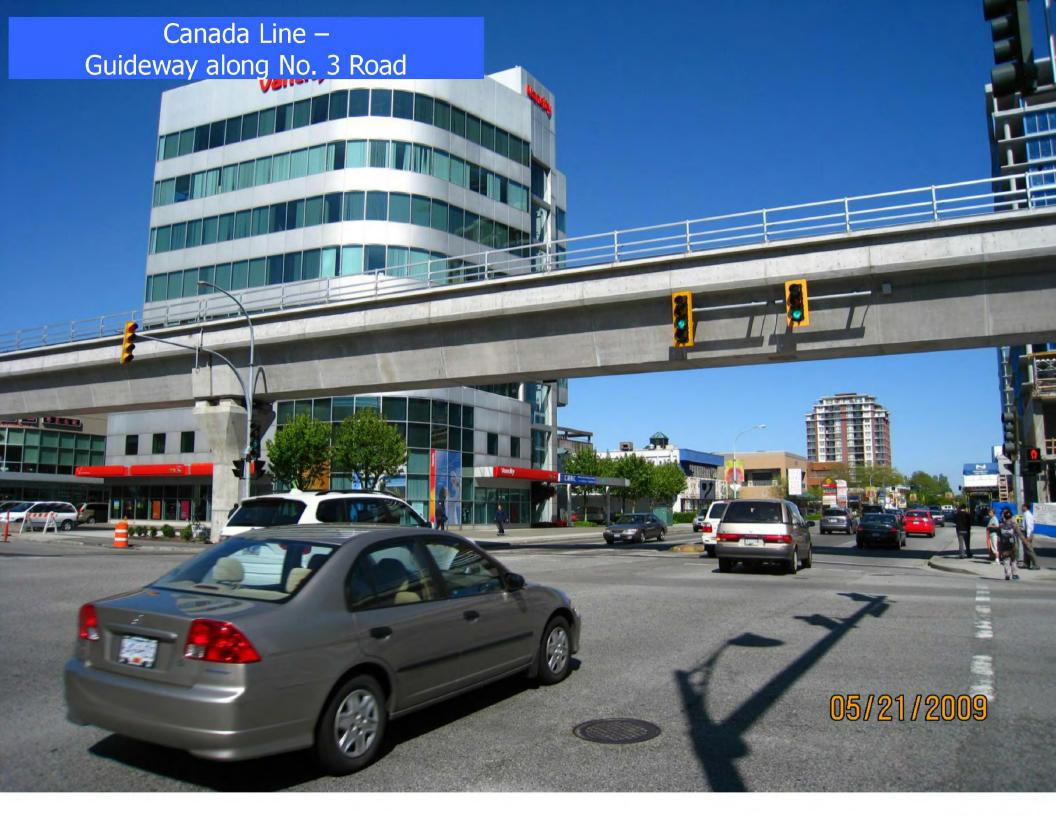


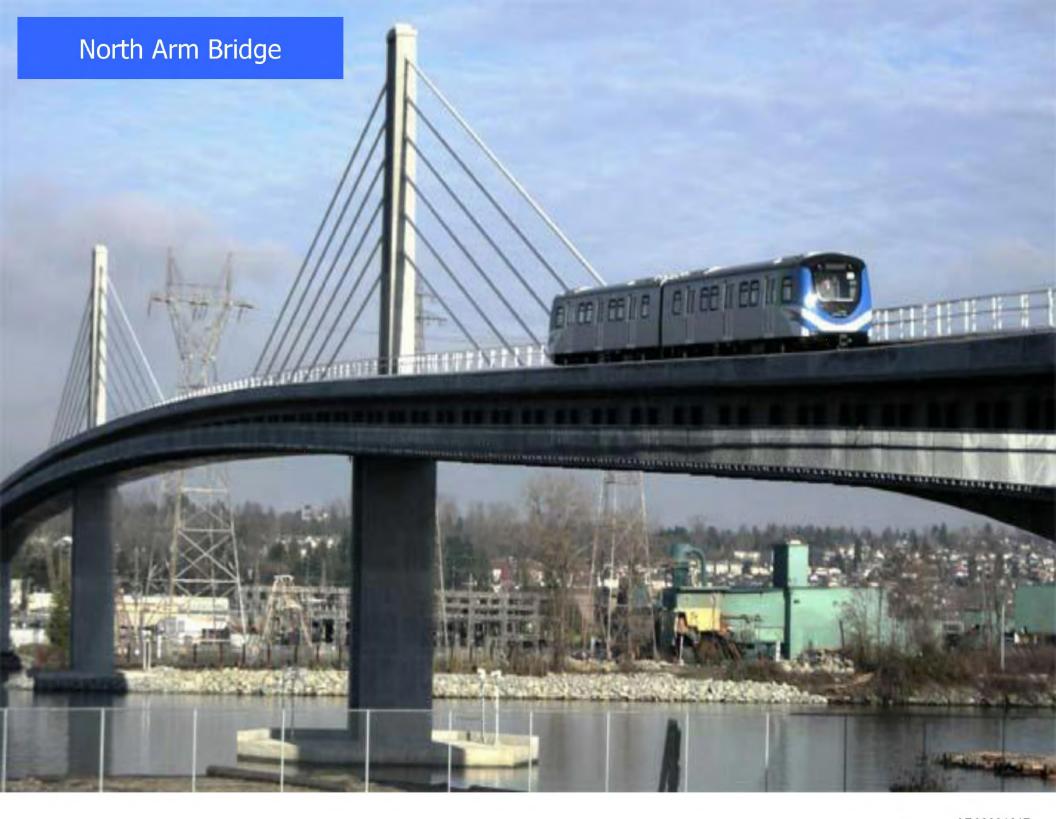
























## Conclusion

Frequent service of automated trains continue to attract riders and stimulate high density transit oriented developments in Metro Vancouver.

Metro Vancouver has successfully shaped growth with regional destinations while significantly reducing the reliance on the automobile with an integrated transit system.







## The Liveable City

The Importance of elevated transit to making Honolulu a sustainable city

Ian Mulcahey
Planning & Urban Design Practice Leader,
Gensler

...the bridge between east and west... more than sun, sand, sea and the spirit of Aloha... a great place to vacation as well as do business... I still believe that we could still promote ourselves as the Geneva of the Pacific

Mufi Hannemann Interview with Monocle Weekly Magazine

Globally cities are increasingly focusing on liveability as a means to achieve sustainable development

How Liveable is Honolulu?

#### Mercer's 2009 Quality of Living Survey

1st Vienna, Austria

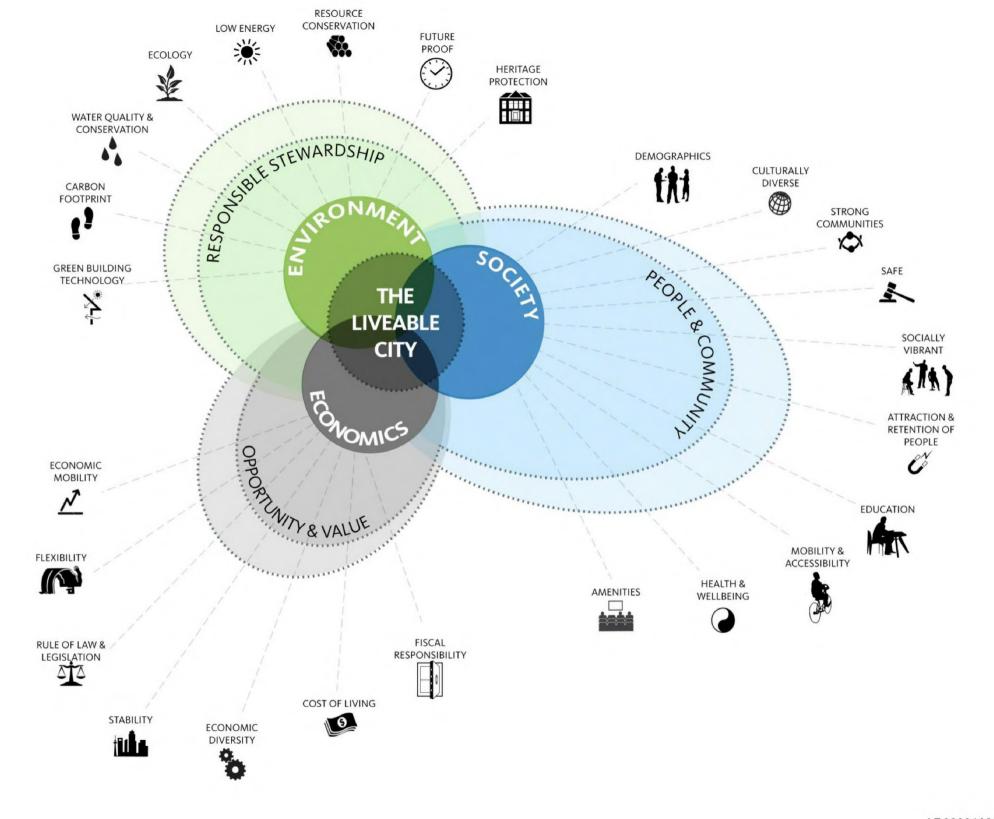
2<sup>nd</sup> Zurich, Switzerland

3<sup>rd</sup> Geneva, Switzerland

4<sup>th</sup> Vancouver, Canada

4<sup>th</sup> Auckland, New Zealand

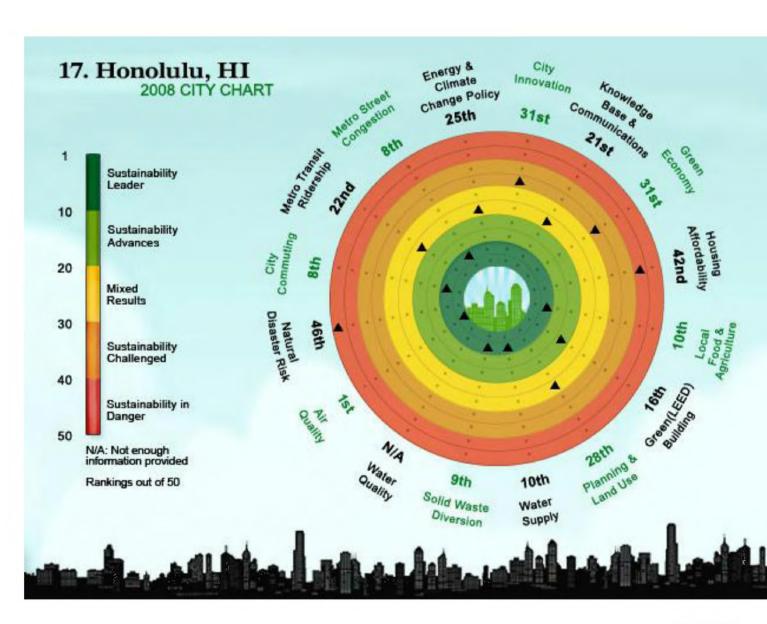
29<sup>th</sup> Honolulu ... and the highest in the US



How Sustainable is Honolulu?

2008 US City Rankings by SustainLane ranked the 50 most populous US cities

17th Honolulu



The detail shows a worse picture

EDN Urban Environment Report ranked Honolulu out of 72 US Cities:

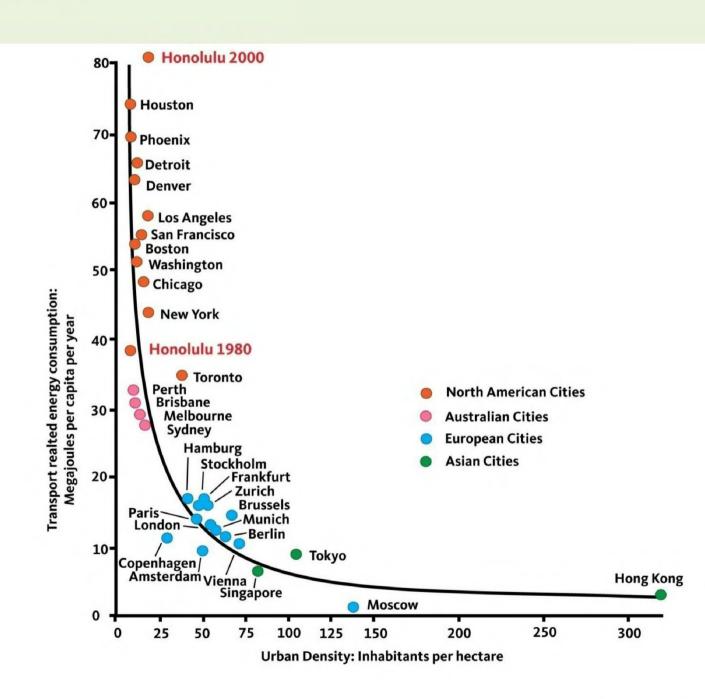
38<sup>th</sup> for Mean Travel Time to Work

69<sup>th</sup> for % of Average Cost of Living spent on Transportation



Petroleum provides nearly nine-tenths of all the energy consumed in Hawaii

The largest consumer of energy is transportation



## Honolulu Transit

#### Transit improving liveability & sustainability



The disconnect between perception & reality

Perceived Paradise

**Urban Reality** 





#### The need for Transit





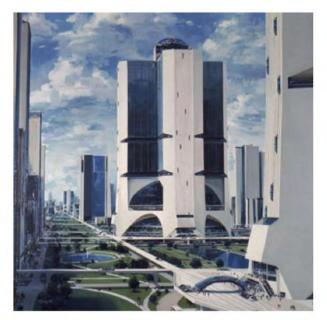






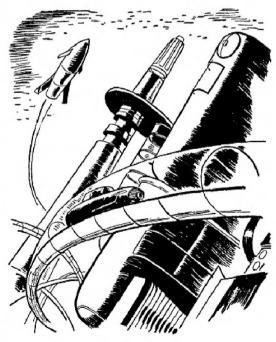
Chicago

#### Vision











## Honolulu Transit

The need for transit is established.

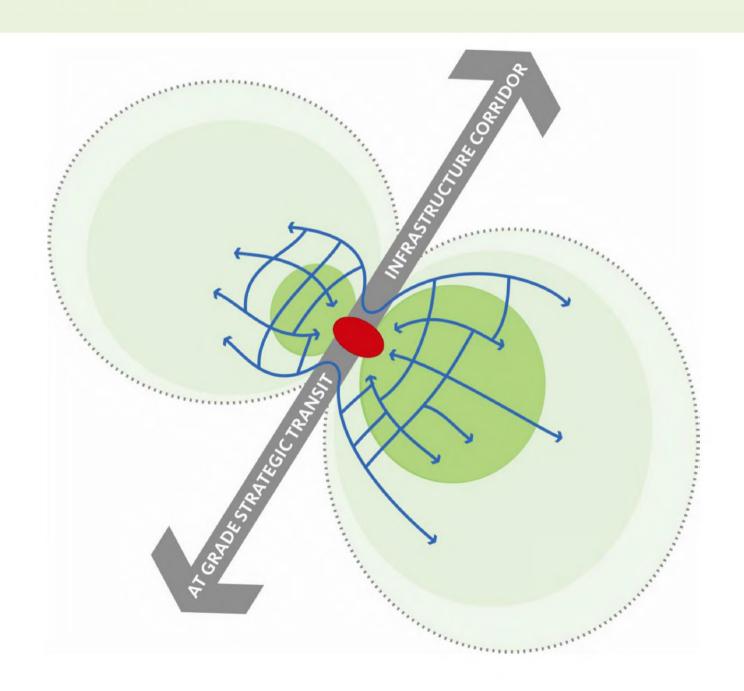
The technology - elevated rail - is determined.

The route is planned.

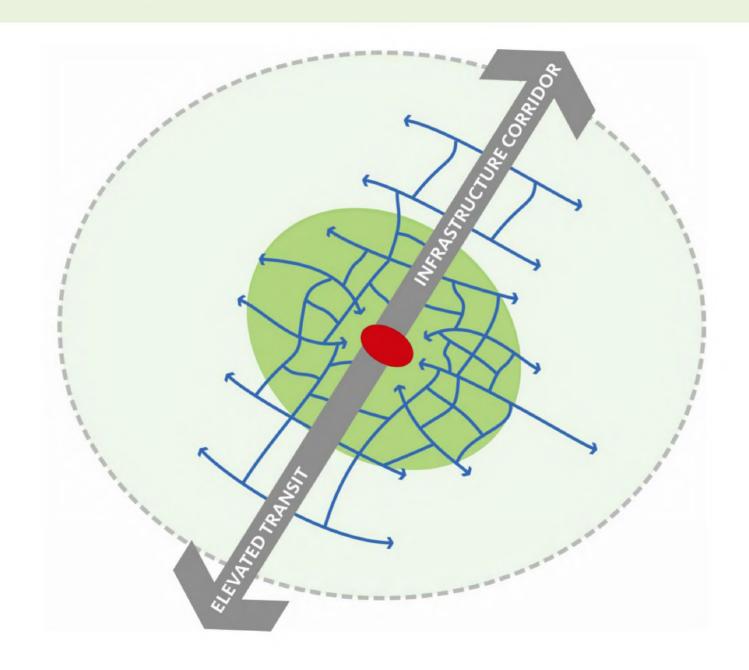
Now to decide how to integrate it into the city to leverage the benefits of transit for Honolulu's communities

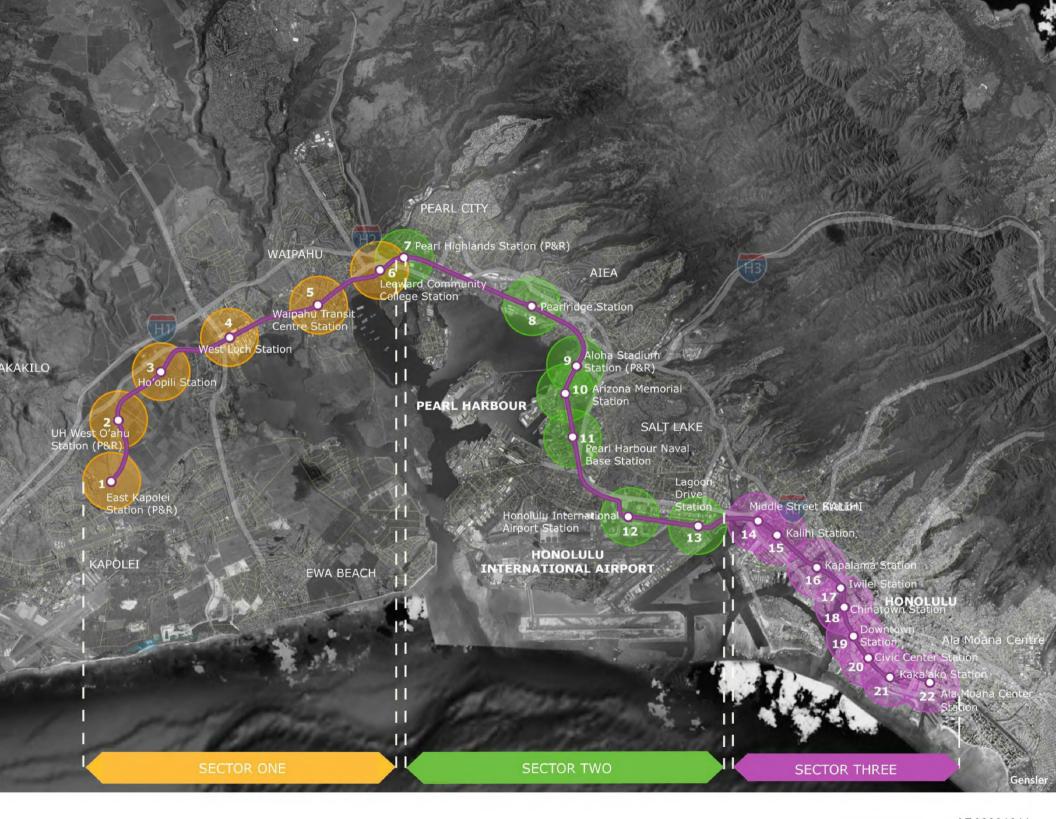


#### At grade - Divisive

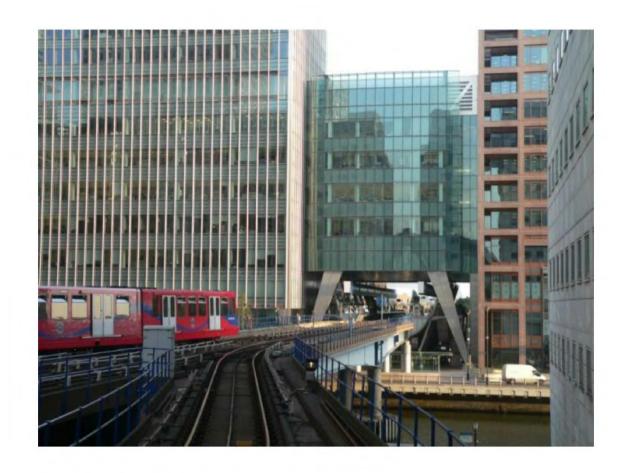


#### Grade Separated - connected





#### Catalyst for city repair



Docklands Light Rail, London



#### The experience – the view of it and the view from it





Docklands Light Rail, London

#### Maximise connectivity





Bangkok, Thailand

#### Functional integration









Paris Viaduct

#### The station as the mixed use destination



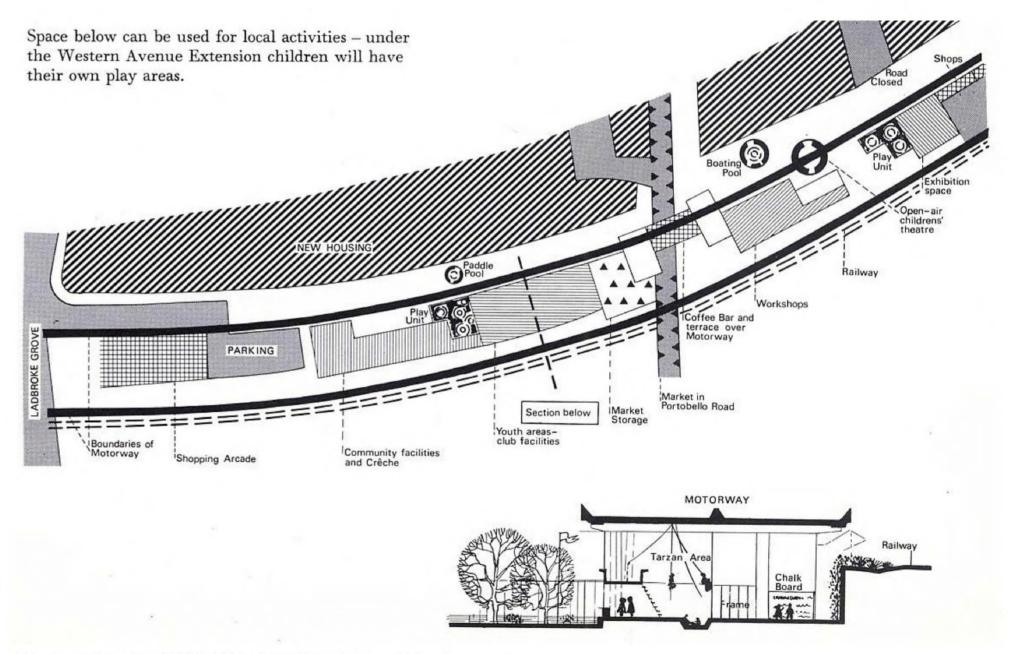
### The station is a community focus



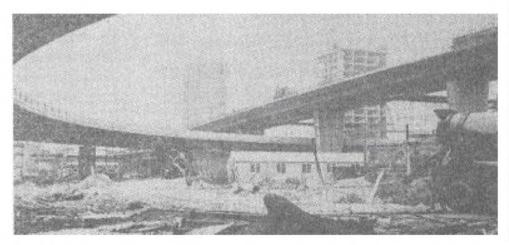


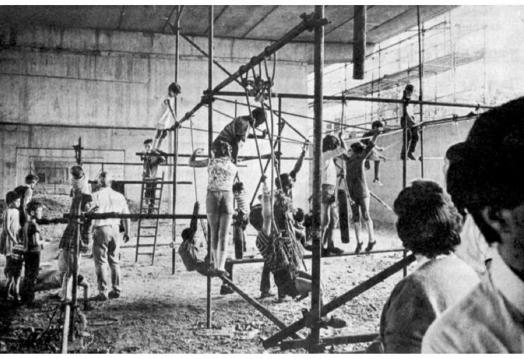


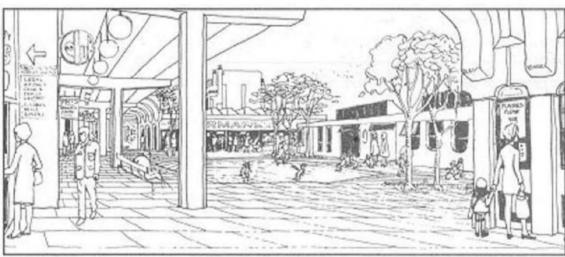
Westway, London, Westway Development Trust



Westway, London (1960s) Westway Development Trust



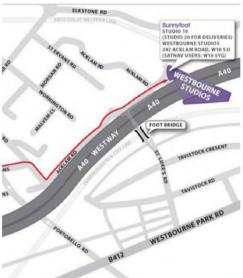




Westway, London (1970s) by Westway Development Trust

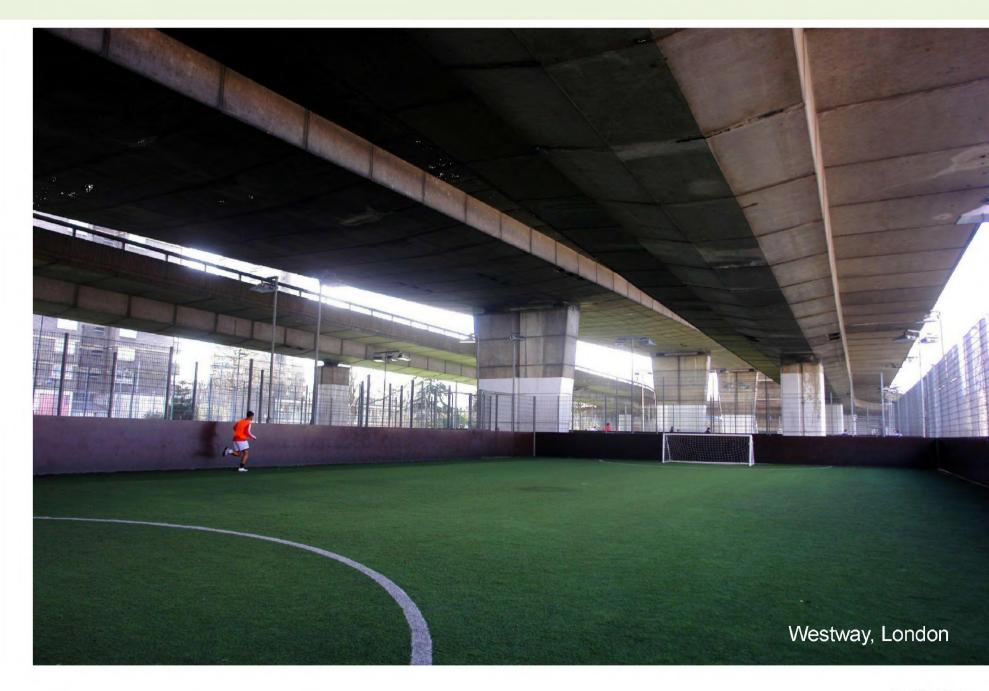


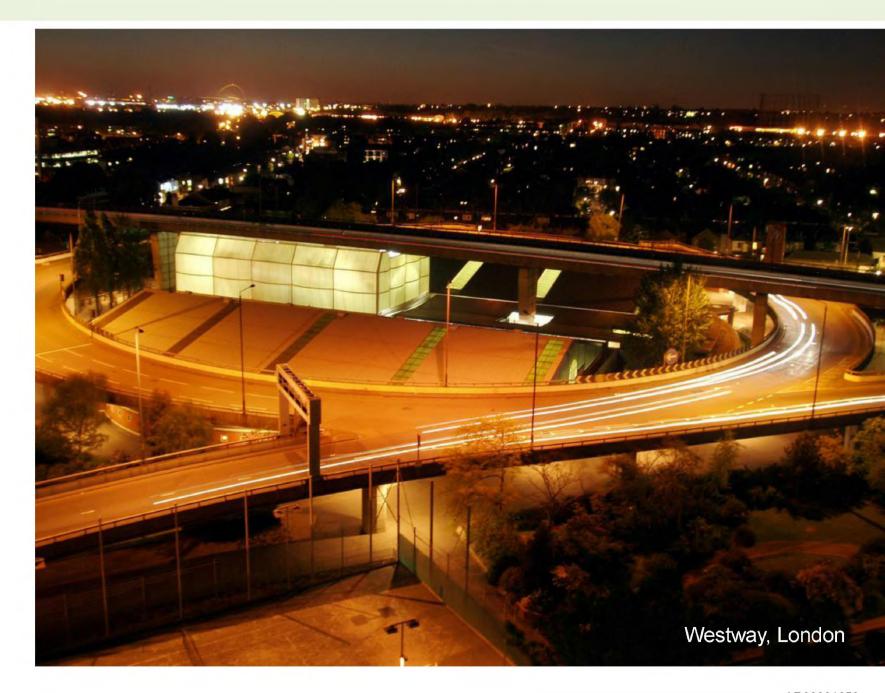






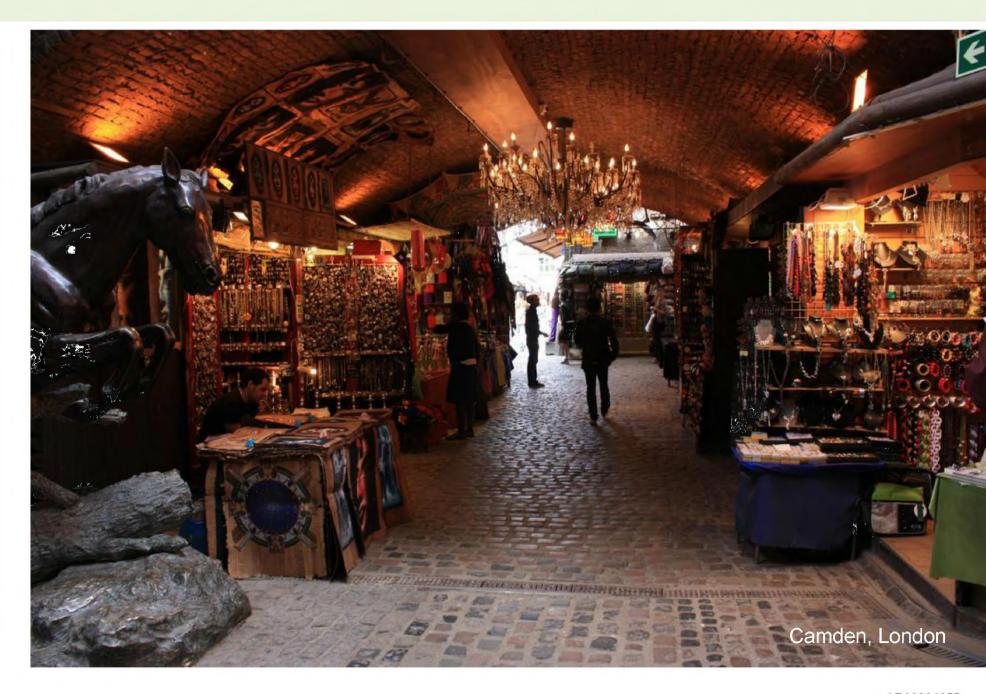
Westbourne Studios, Westway, London







Bangkok, Thailand











Moscow, Russia

#### Dubai, UAE











Singapore

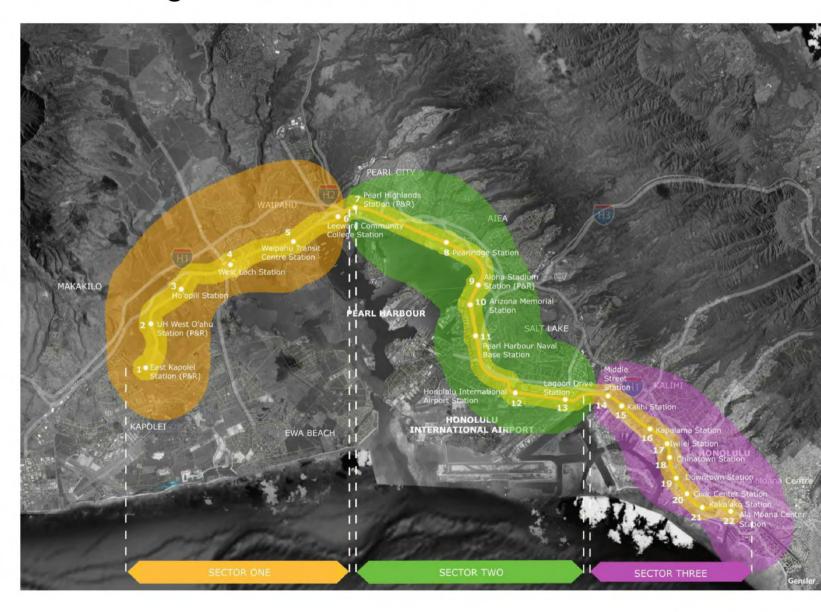


Singapore



## Honolulu Elevated Rail

### The Catalyst for the Regeneration of Honolulu



### Functional integration













### Social integration













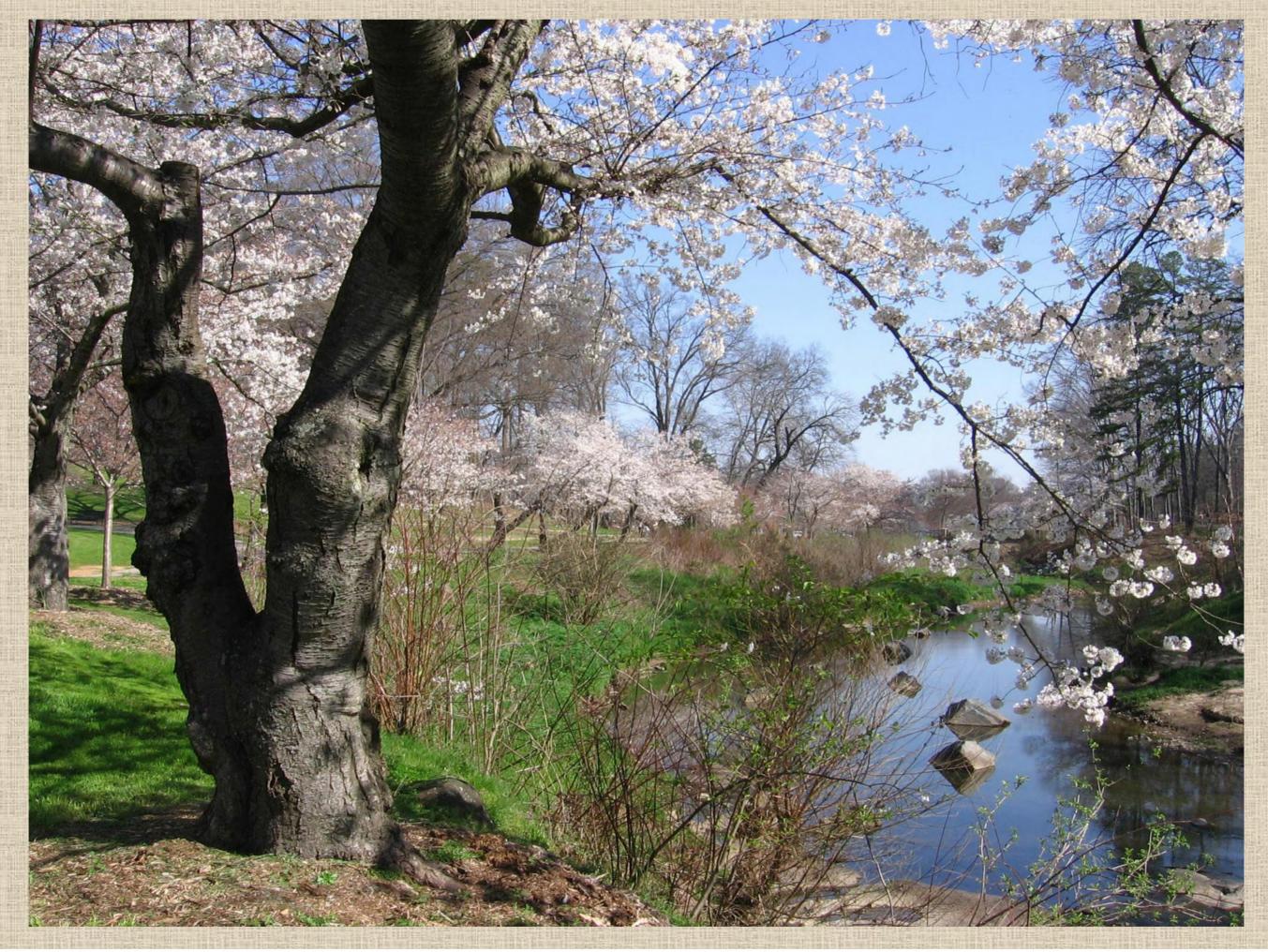
Thank you

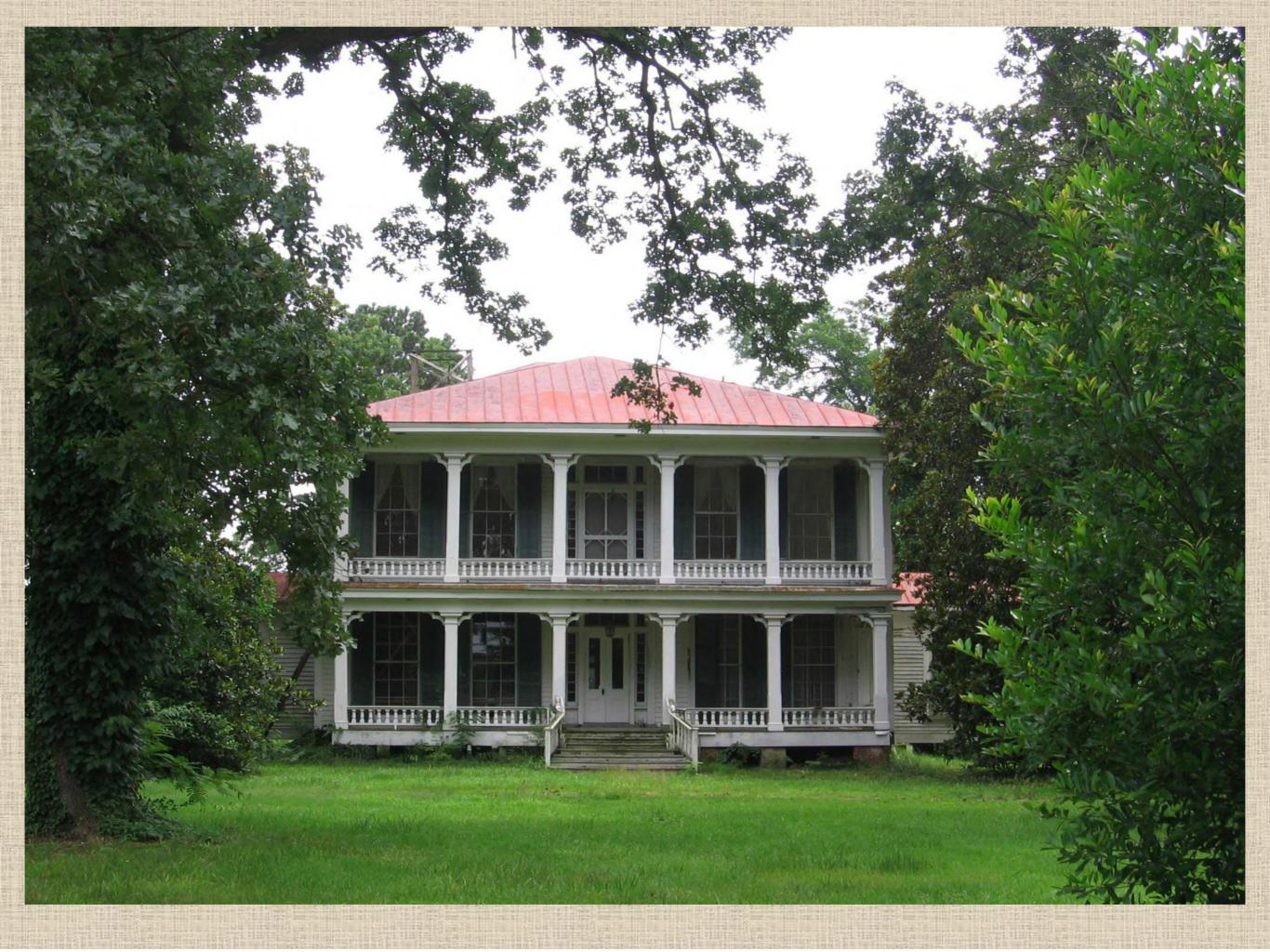




# LYNX Blue Line





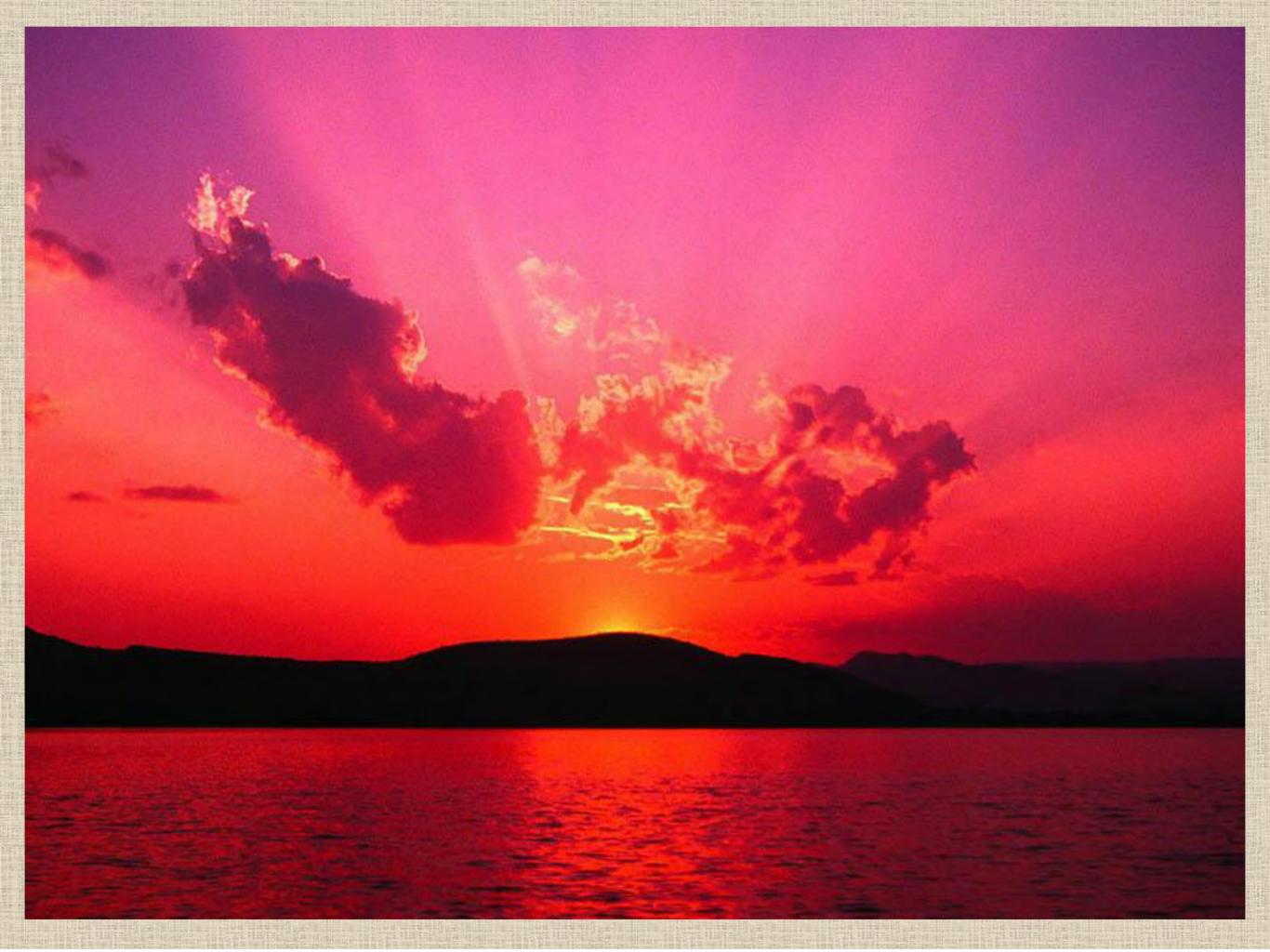


Churches Columns & Cars





















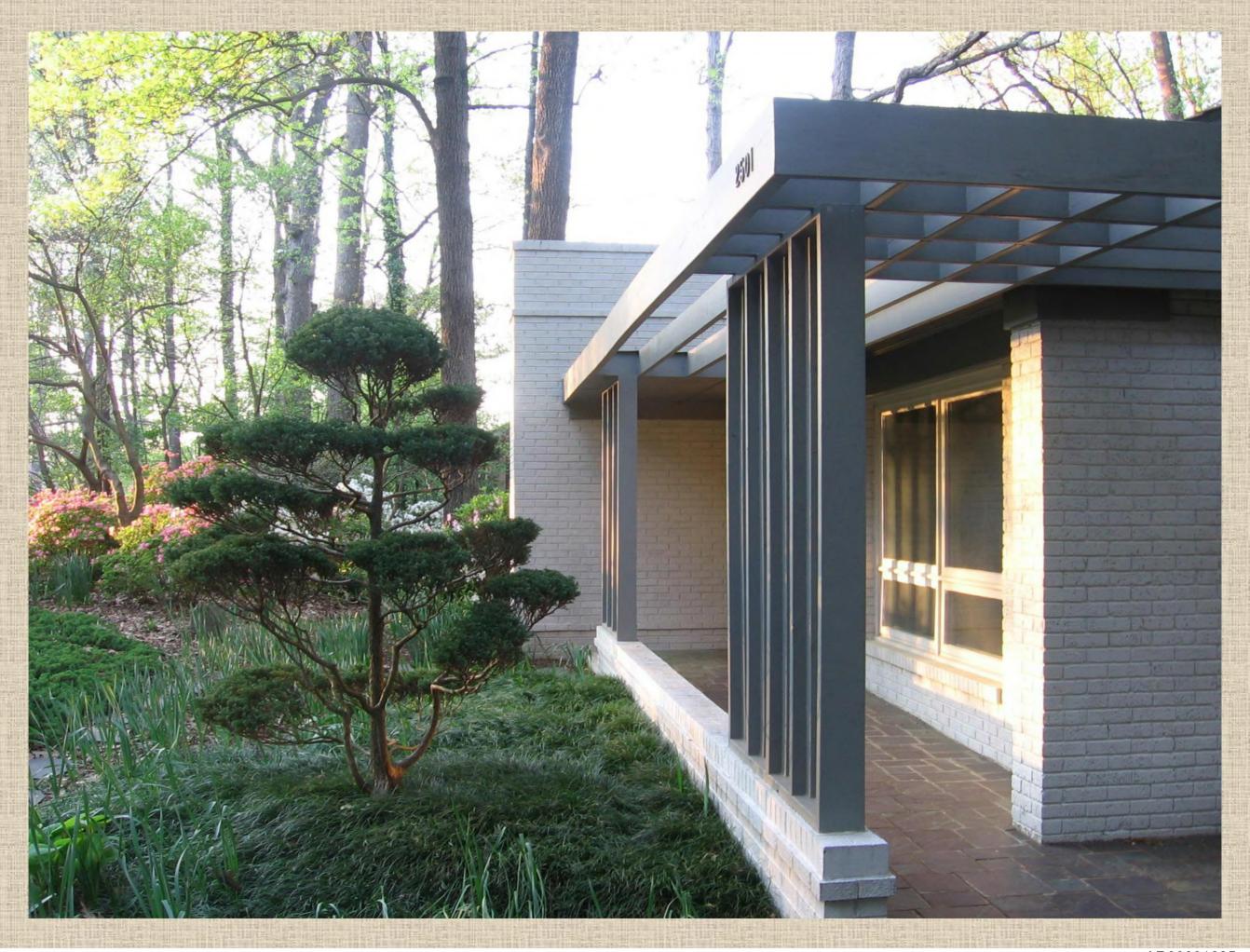


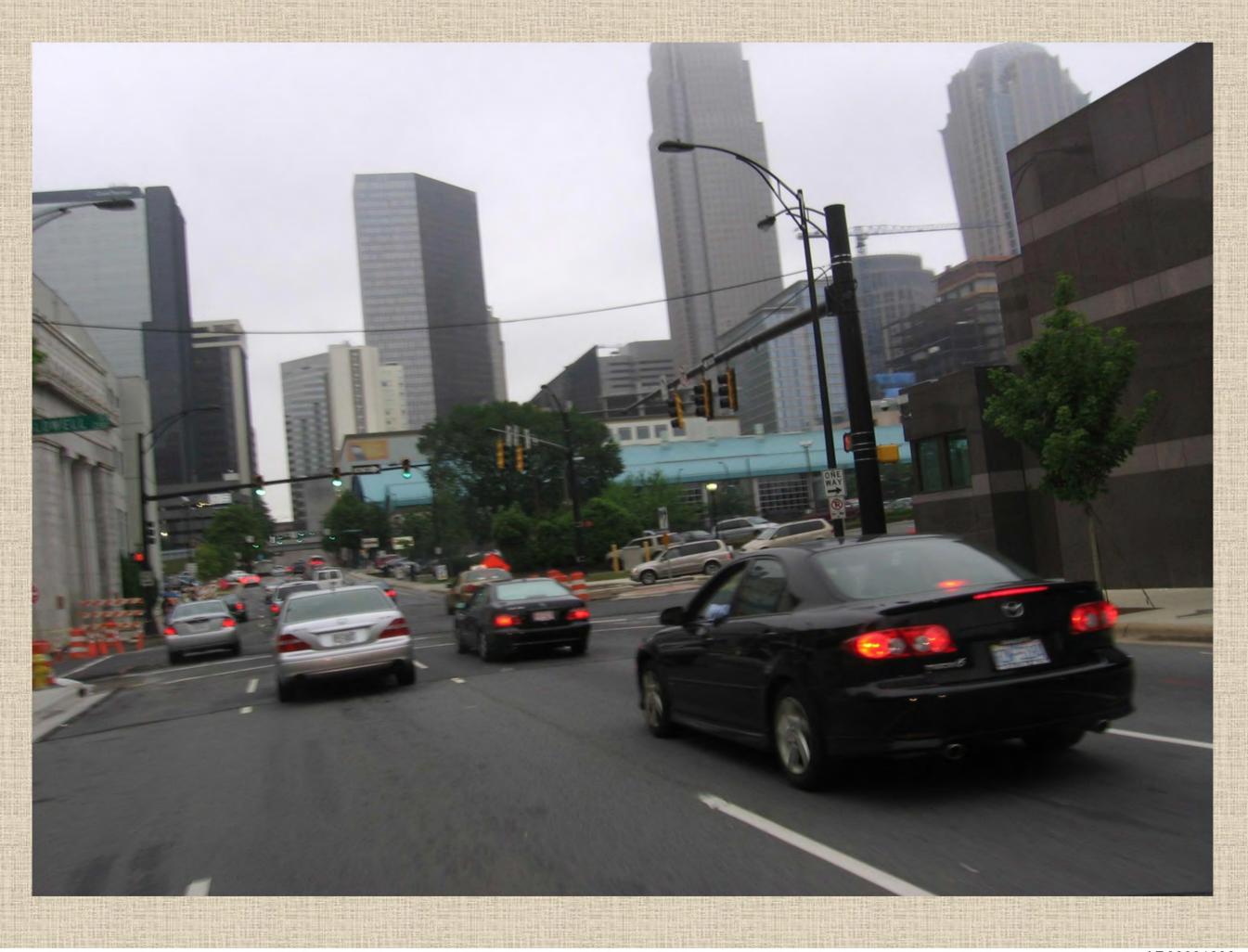




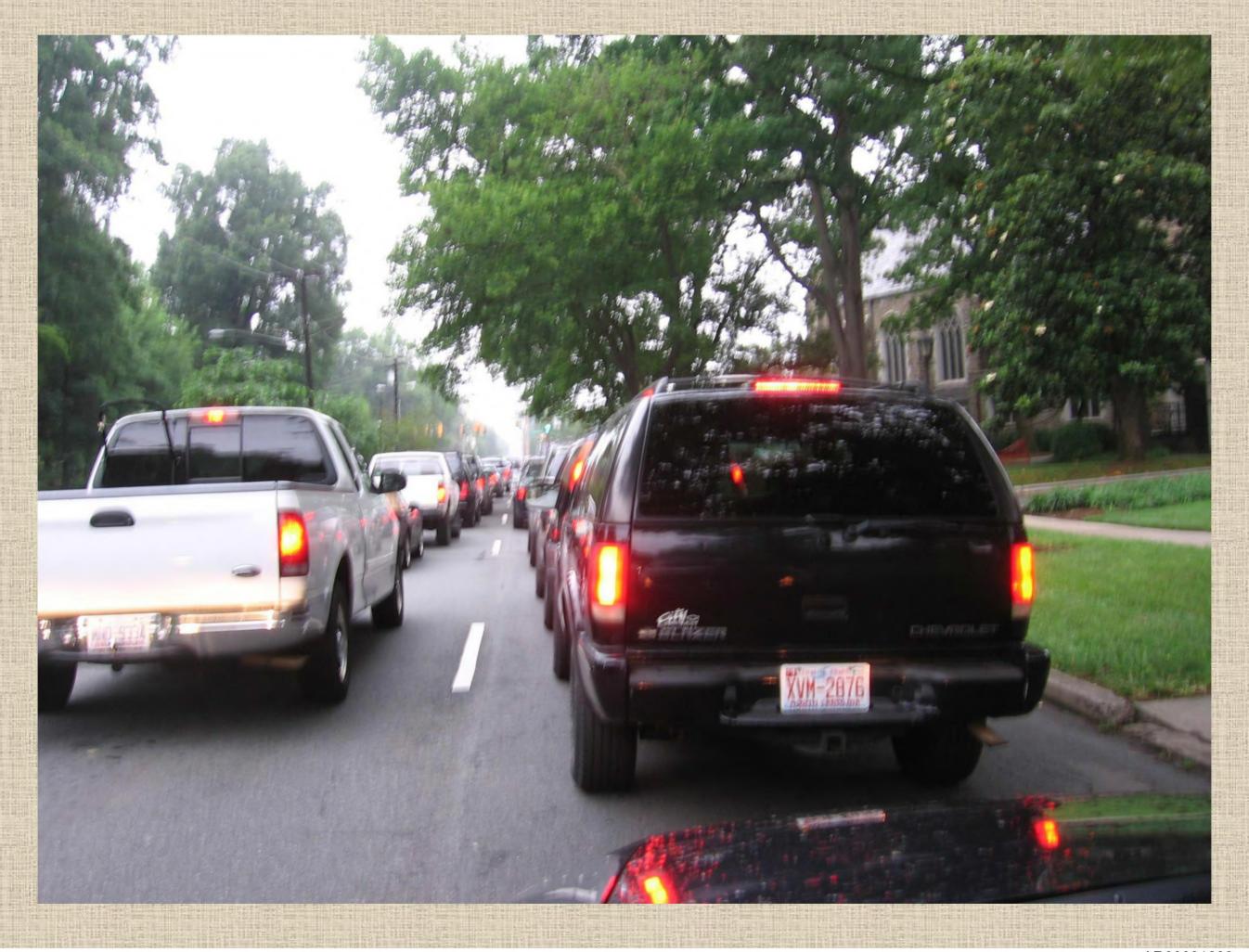






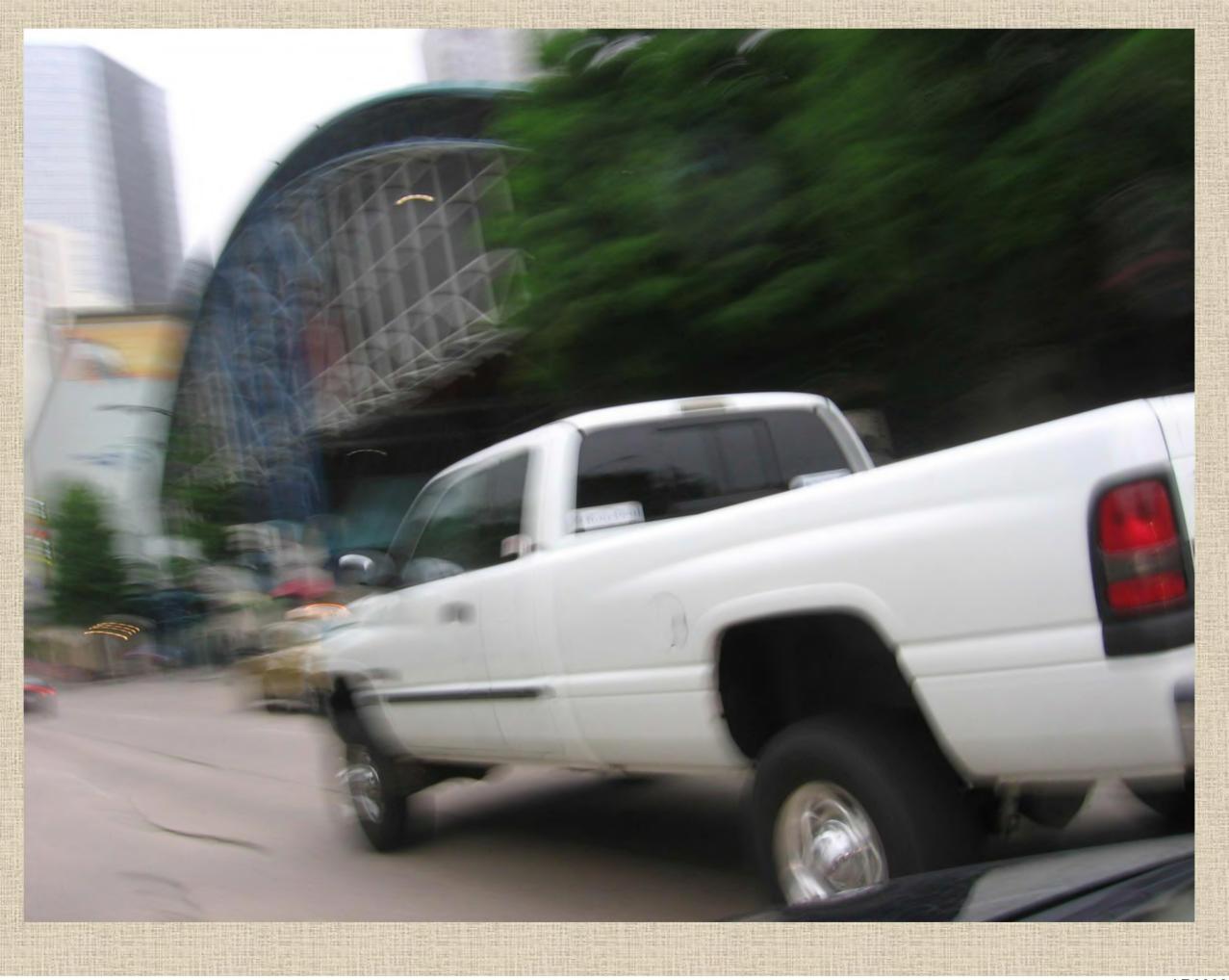




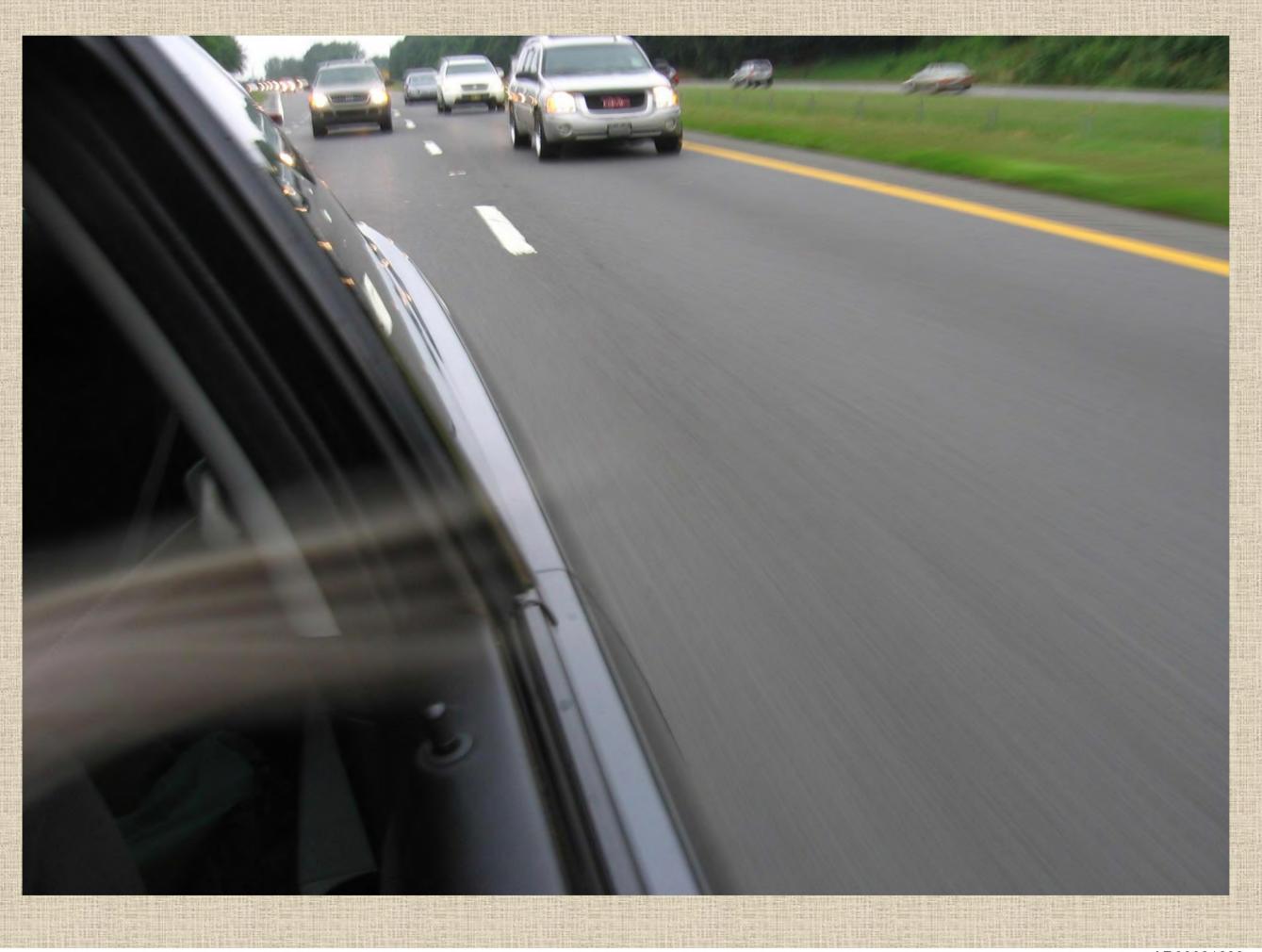


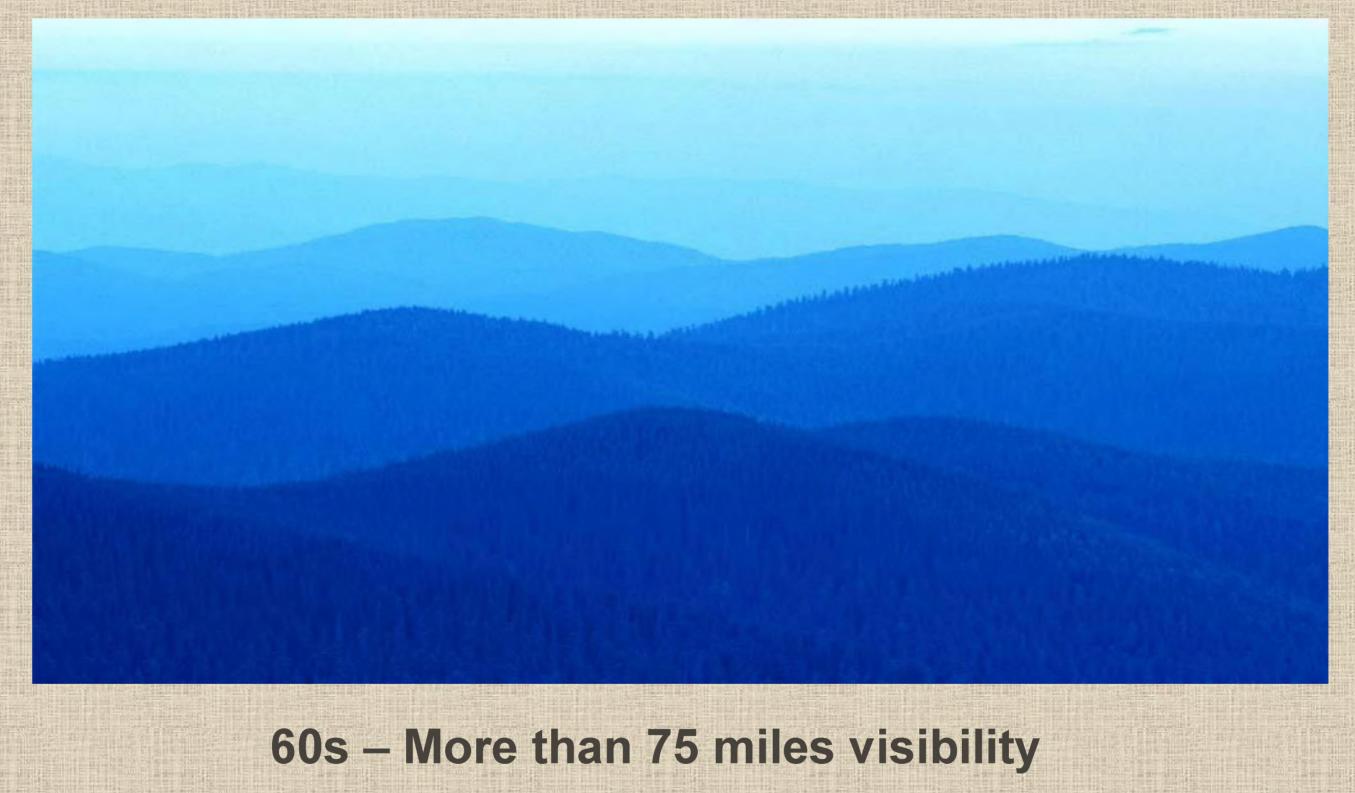






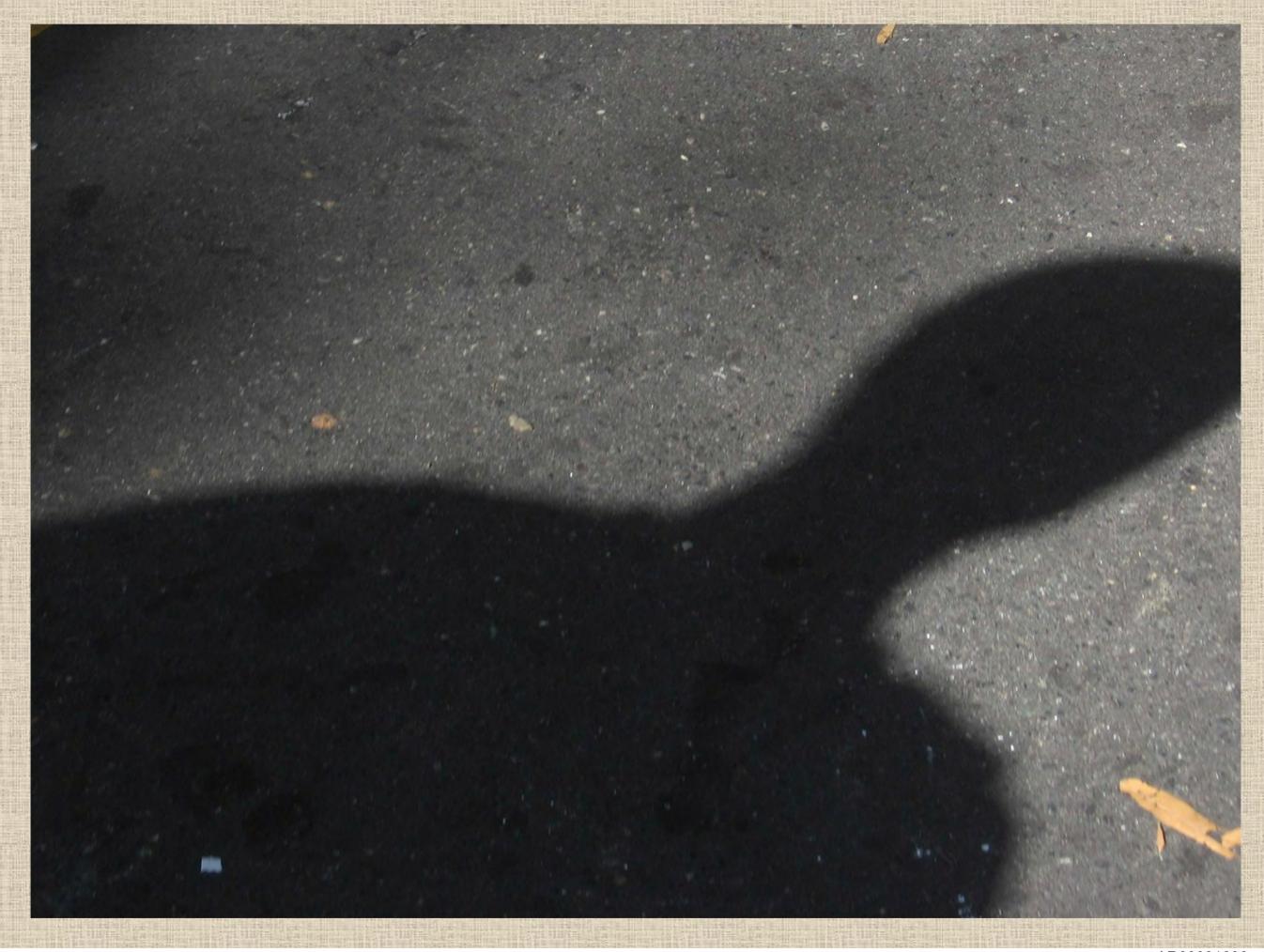




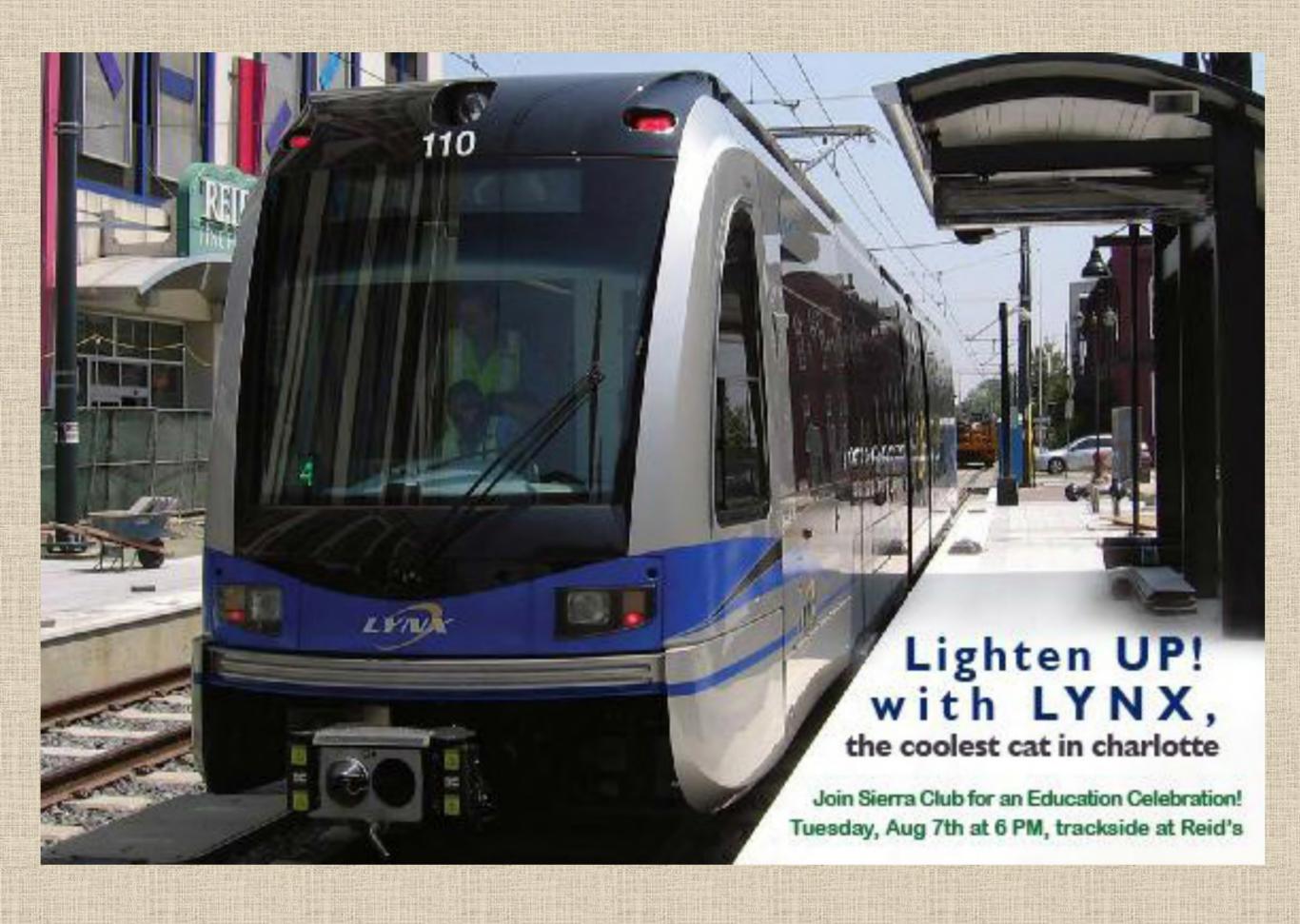


Today – Less than 15















#### Blue Line Characteristics

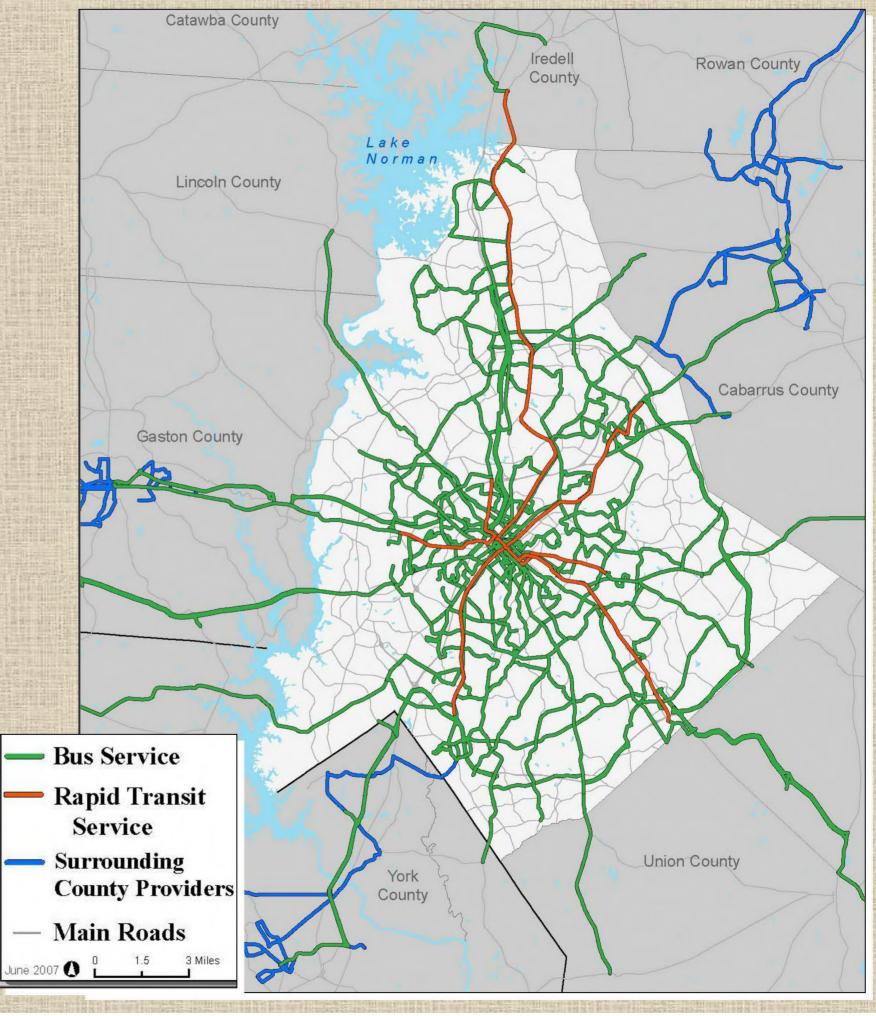
- Opened November 24, 2007
- 9.6 Miles
- \$462.7 Million
- 15 Stations (7 park and rides 3,600 spaces)
- Operates 7 days a week,
   5:30 a.m. 1:30 a.m.
- Service Frequency
  - Rush hour: 7.5 minutes







# Transit Service 2030









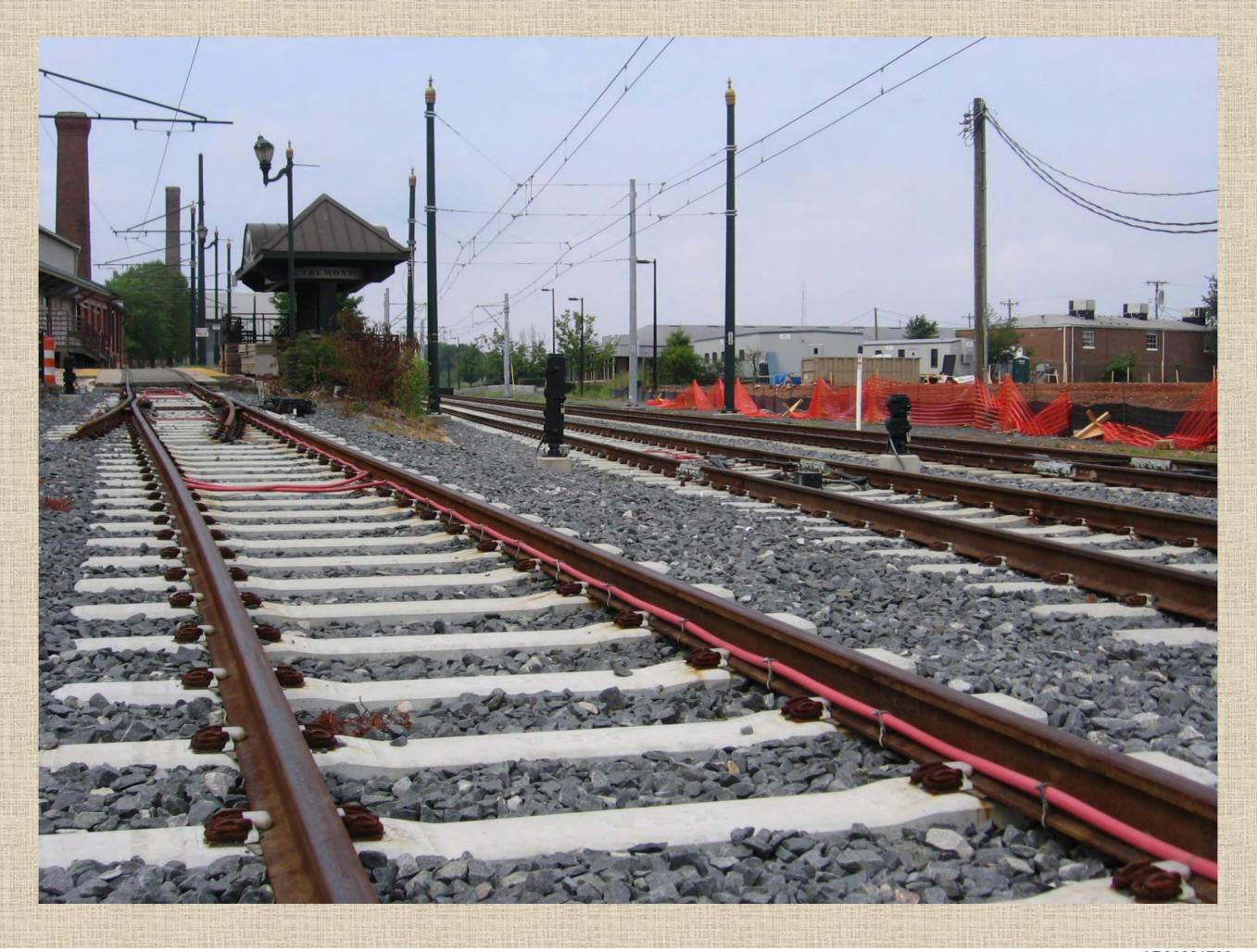


VOTE

## XAGAINST

### 

Keep Mecklenburg Moving



#### FACT # 1

Public Transit emits 90% less carbon monoxide and 50% less carbon dioxide per passenger mile than a car. (1)

#### FACT#2

Traffic and off road vehicles account for 63% of the Charlotte region's ozone pollution. (2)

#### FACT#3

Transit emits 92% less volatile organic compounds (VOCs) and 50% less nitrogen oxides (NOx) per passenger mile than a car. (3)

#### FACT#4

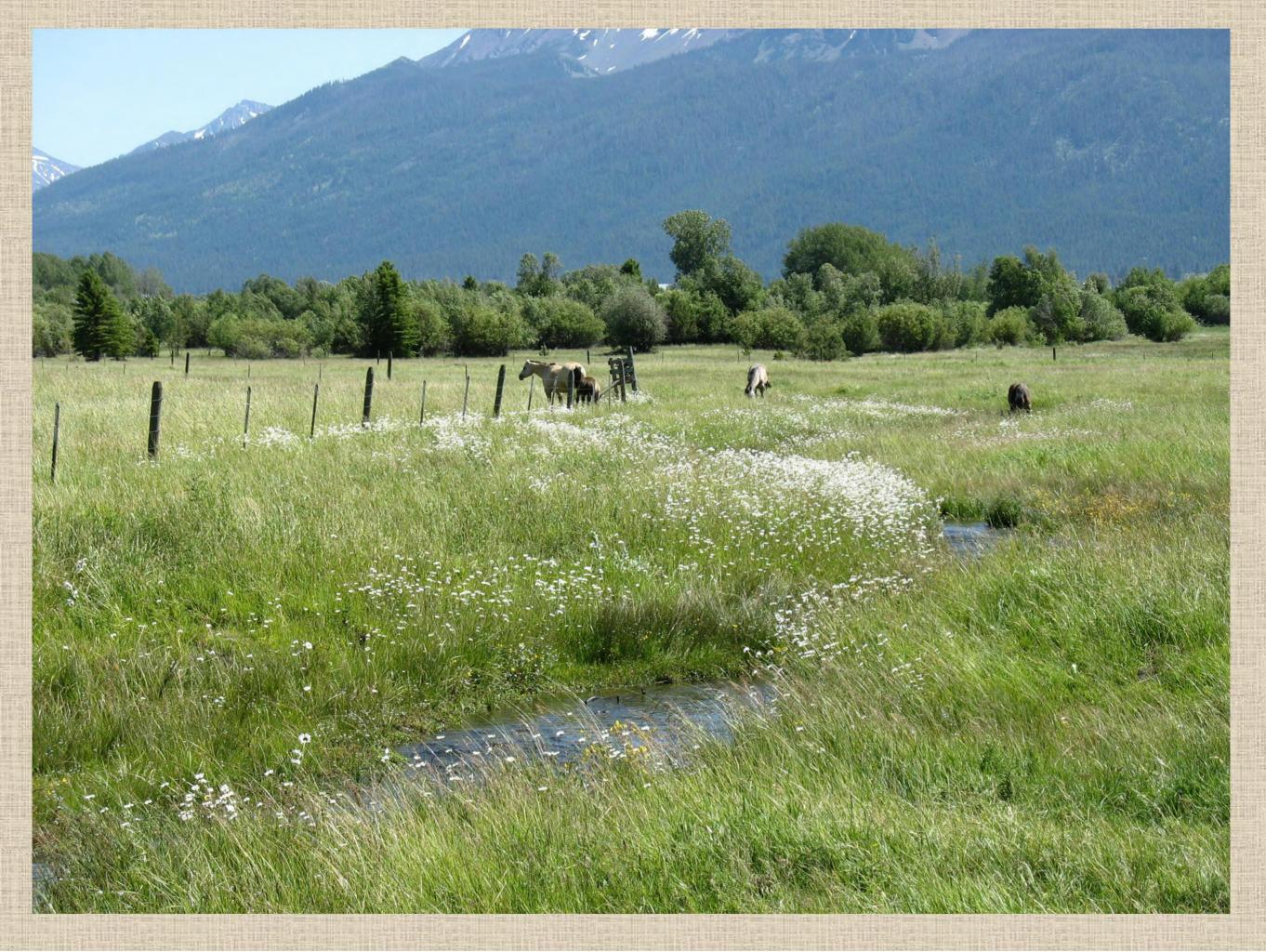
Americans average 62 hours per year sitting in rush hour traffic with engines idling. (4)

#### FACT # 5

A light rail line can carry as many people as an 8 lane freeway, using 1/10 of the land. (5)

#### FACT#6

If Americans used public transportation at the same rate as Europeans- for roughly 10% of our daily travel needs-the US could reduce dependence on imported oil by 40% (8)















## Repeal Defeated!

- Unprecedented 70% vote against repeal
- LYNX Blue Line Grand Opening
  - Over 100,000 riders join the celebration
- Transit Ambassadors help patrons navigate the system
- Ridership
  - Starts strong and stays strong
  - Opposition melts away







## LYNX Blue Line Success!

- Ridership system-wide is up 39% compared to last year
- Blue Line ridership averages over 16,000 daily trips
  - First year projection:9,100
  - 2025 projection:18,100

#### **PERFORMANCE**

16,000+ passenger trips 5,000,000 passenger trips in first year Special Events/Work 97% on-time 0 preventable accidents Safe environment







## **Chatham Olive**

- VP Commercial Business Development / Community Relations
- Argand Energy Charlotte, NC
- 704.583.9295
- Chatham.olive@argandenergy.com



Sources:		
	1, 3, 8	"Conserving Energy and Preserving the Environment: The Role of Public Transportation" by Robert J. Shaprio, Kevin A. Hassett, and Frank S. Arnold.
	2	Charlotte Area Commuter, Vol. 3, No. 6, June 2003 http:// charlotte.commuter.com
	4.	Texas Transportation Institute 2002, published in Smart Commute www.smartcommute.org
	5, 6	Responses to Criticisms or Questions about Investing in Public Transit, CATS 2004
	7	City of Charlotte Real Estate Division, 2005
	9	NC DOT State Transportation Program; South Corridor Light Rail Project Final Design, CATS





# METRO Light Rail Phoenix, Arizona

Richard J. Simonetta
Chief Executive Officer

June, 2009



#### The Problem

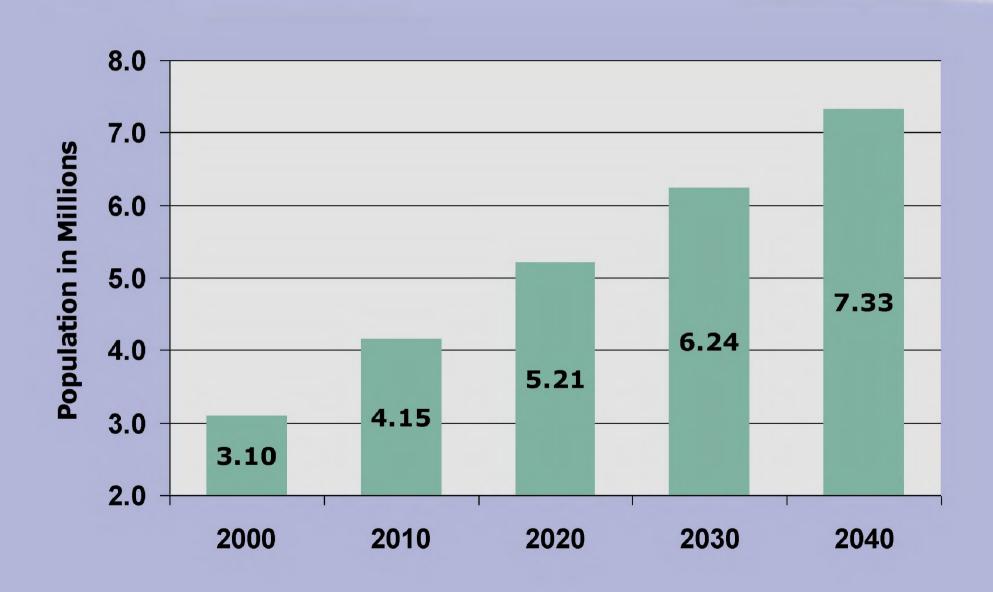


- Maricopa County gains
   1 million new people
   per decade.
- Infrastructure has not kept pace with growth.

- The Phoenix metro area has the 16<sup>th</sup> largest population in the country, but the transit system is only the 26<sup>th</sup>.
- Roadway construction will not keep up with population and travel growth.

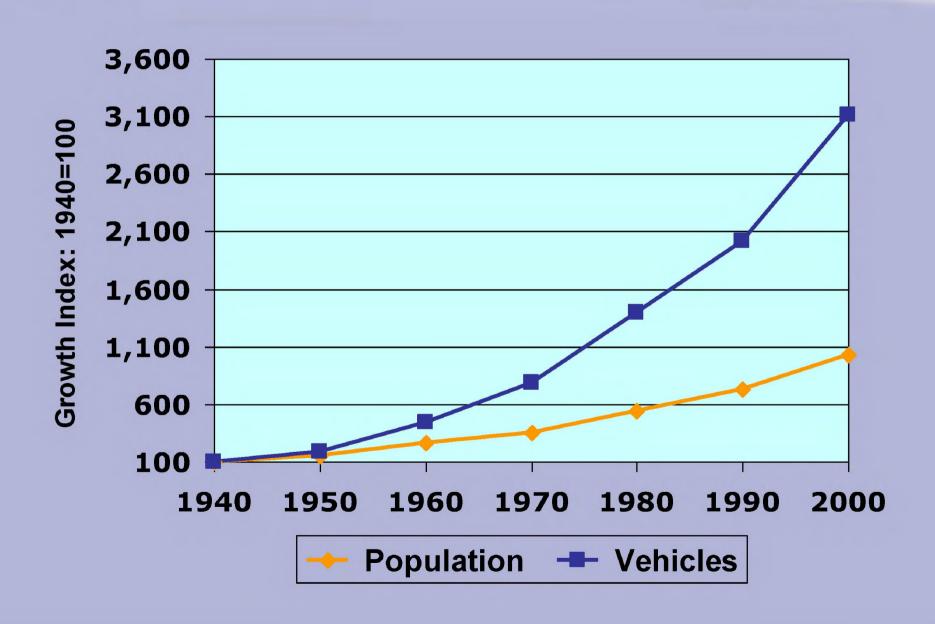


## **Continued Population Growth**





# Travel Increasing Faster Than Population





## **Light Rail Moves More People**



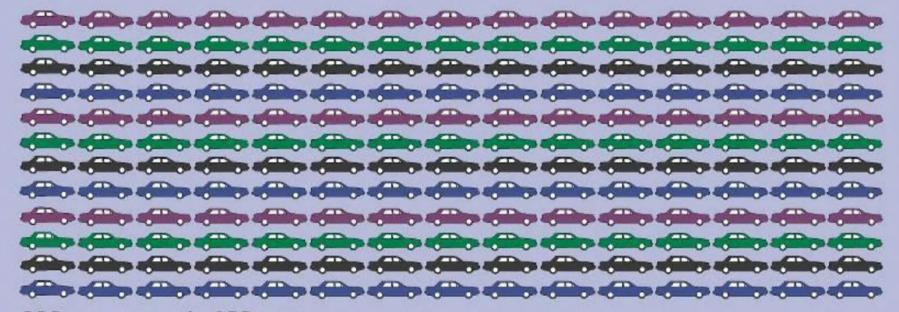
200 passengers in one light rail vehicle



600 passengers in a light rail train



200 passengers in five buses



200 passengers in 180 autos



## **Transit Election History**

1989: ValTrans – Regional

1994: Proposition 400 - Regional

1996: Proposition 400 – Tempe

1997: Proposition 1 – Phoenix

1997: Proposition 1 – Scottsdale

1998: Question #1 - Chandler

1998: Quality of Life Tax – Mesa

2000: Proposition 2000 - Phoenix

2001: Proposition 402 - Glendale

2004: Proposition 400 – Regional



## **Regional Transit Agencies**

- Maricopa Association of Governments (MAG)
  - Develops the Regional Transportation Plan
  - Travel demand forecasting
- Regional Public Transportation Authority (Valley Metro RPTA)
  - Operates regional bus service
  - Sub-regional planning and project development for bus services
- Valley Metro Rail (METRO)
  - Operates light rail system
  - Light rail/high capacity transit sub-regional planning and project development



### Valley Metro Rail, Inc. **METRO**

- Formed in October 2002
  - construction and operate the METRO light rail system, including future extensions





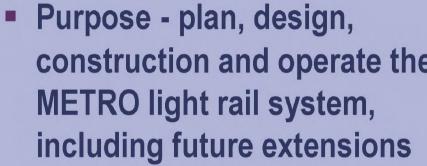
















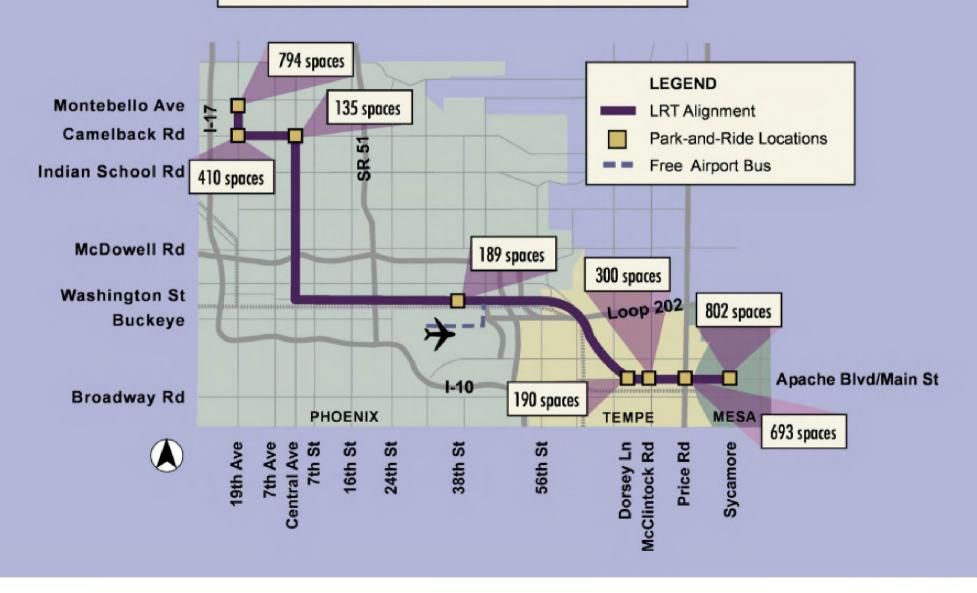
## 20-Mile Light Rail Line





#### **Park-and-Ride Locations**

3,513 Opening Day Park-and-Ride Spaces





## **Name The Train Contest 2003**



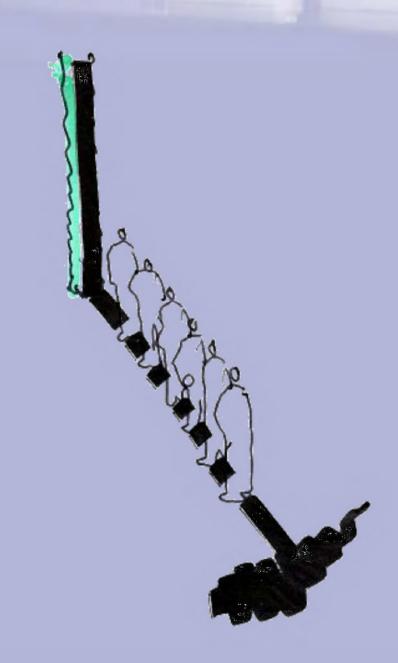


## **System Design Priorities**

- 1st Shading and Cooling Strategies
  - Adjacent Pedestrian Areas
- 2<sup>nd</sup> Station Design
- 3<sup>rd</sup> Security
- 4<sup>th</sup> Vehicle Design
  - Overhead Wiring
  - Maximizing Bus Connections

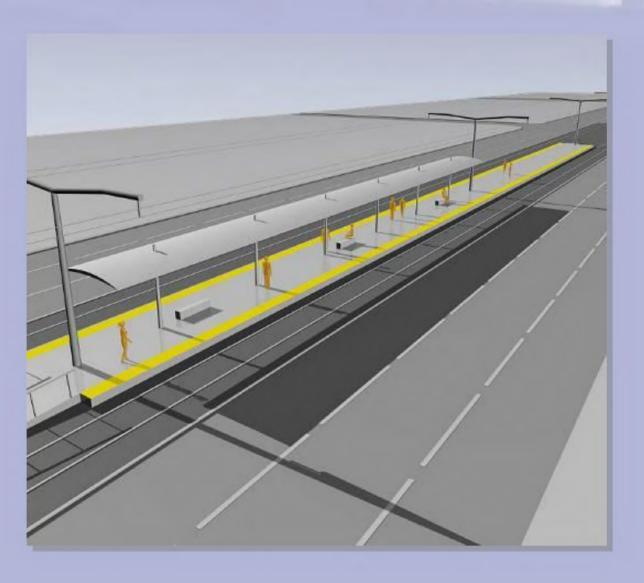


# **Climate Adaptation**





## **Traditional LRT Station Canopy**



- Metal surfaces will overheat
- Lack of vertical protection
- Shade falls onto the street



## "Cool Screen" Station







#### "Cool Screen" Station

- 28 stations
  - Louvers & tensile fabric maximize shade
  - Benches, art & plants
  - Chilled water fountains











## **Unique Art at Each Station**



**Apache and Dorsey** 



**1st Ave and Jefferson** 









## **Town Lake Bridge Art**



"Grand Award in Engineering Excellence"

PBSJ / PGH Wong joint venture and sub-consultant Structural Grace from the Arizona chapter of the American Council of Engineering Companies – September 2007



## **Operations and Maintenance Center**



"Public Works Project of the Year"

by the Arizona Chapter of the American Public Works Association

– March 2008



## Security

#### **Closed-Circuit Cameras**

- Vehicle interior & exterior
- Station platforms
- Park-and-ride lots

#### **Communications**

- PA on platforms and vehicles
- Passenger intercom on vehicles
- Emergency call boxes on platforms and PNRs









## **Light Rail Vehicle**

- 50 Vehicles
- Heat reflective paint
- Low E, solar reflective windows
- Insulated car bodies to reduce cooling loss
- Bicycle racks, wheelchair accessible







## **Street Construction**











# **Town Lake Bridge Construction**



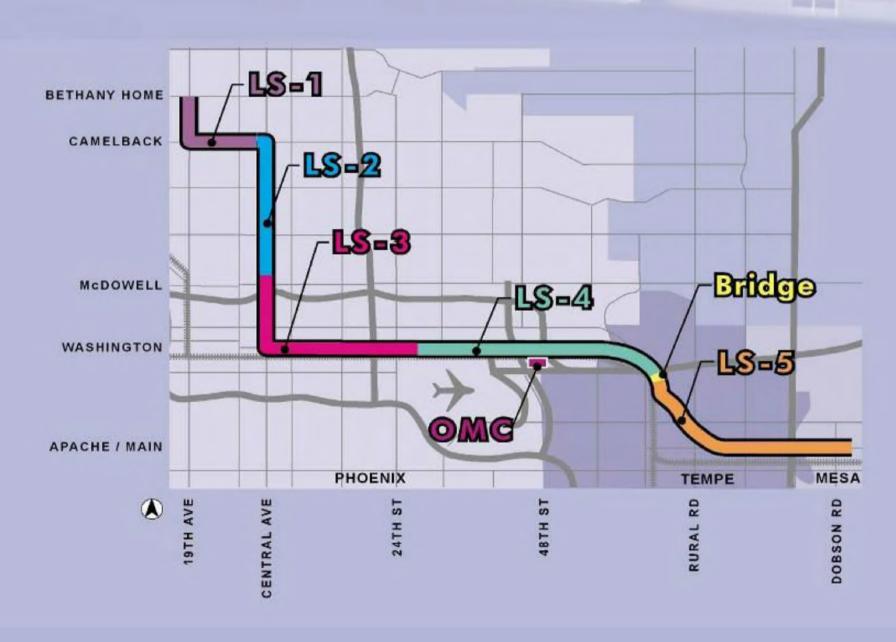






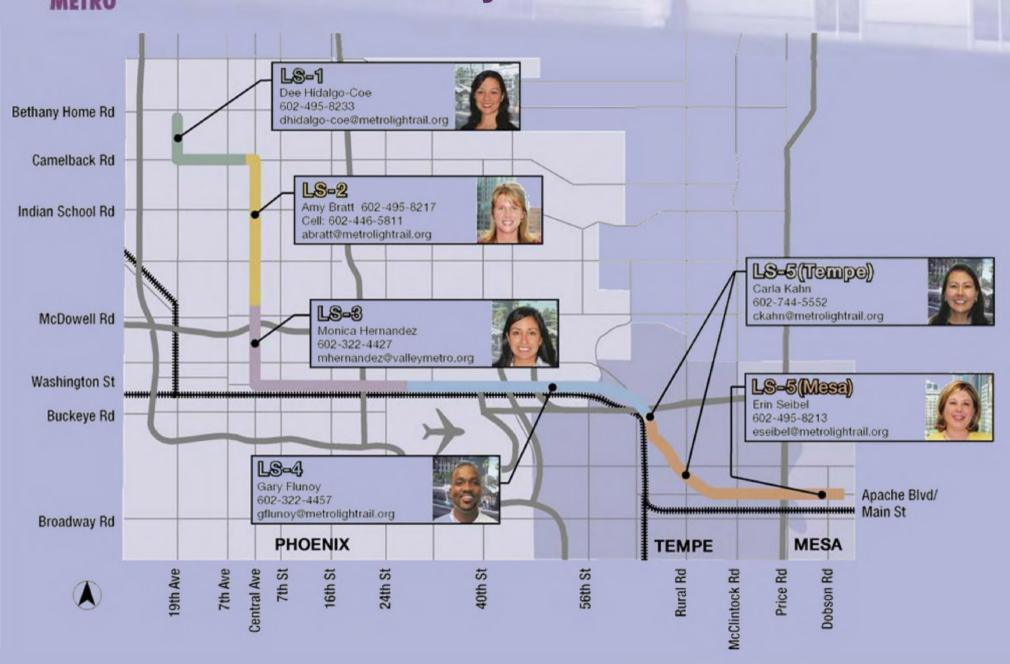


#### **Construction Contracts**





## **Community Outreach Team**





#### **Business Outreach**

- METRO and city partners developed programs to assist local business's
- METRO MAX discount shopping card for business along the alignment
- Courtesy signage provided to assist business with visibility







Visit businesses along the construction route.





## **Community Advisory Board**

- CAB members serve as a voice for the community during light rail construction
- Met monthly to evaluate and discuss contractors performance for monetary incentive





## Safety Campaign

- Billboard, Radio and TV ads run during testing
- Posters and brochures distributed throughout the Valley

Award winning drivers safety video distributed to DMV and driving schools

Public participation with safety slogan"Watch you back stay off the tracks"













## Media Preview Pass Day

#### **December 26, 2008**

- Approx. 3,000 stakeholders, VIP's, media, sponsors and community mascots attended
- Todd McFarlane creator and illustrator of Spawn designed art work for the preview pass
- Local United Way partnership







### **Appreciation Dinner**

#### Held December 26 at new Downtown Phoenix Sheraton

- Speakers included Congressman Harry Mitchell, Shannon Scutari from Governor Napolitano's office, Leslie Rogers FTA Administrator, Region IX
- Included the "March of the Metro" commissioned by The Phoenix Symphony







### Official Ribbon Cutting Ceremony

#### **December 27, 2008**

- Formal ribbon cutting ceremony held at Operations & Maintenance Center
- Comments from Secretary of Transportation Mary Peters







## **Grand Opening Day**

- Successful debut
- Over 150,000 people in attendance
- 3 to 4 hour boarding wait









### **City Celebrations**

- It All Starts Here Mesa featuring Grand Funk Railroad, classic car show, Fit City for kids, game truck and vendors
- Destination Tempe Tempe featuring Roger Kline and the Peacemakers, "Go Green" Expo, face painters, clowns and vendors
- Phoenix Rising Phoenix featuring the Phoenix Convention Center opening, Native American dancers, vendors and family activities







#### **Awards**

- Southwest Contractor Awards
  - Arizona Best of 2008 in Transportation Line Section 5
  - Engineering Design Tempe Town Lake Bridge
- 2008 Associated Minority Contractors of America Community Service Award Employer of the Year
- 2008 Dreamer Best Project in Downtown Phoenix Area Award
- 2008 WTS Innovation in Transportation Award
- 2009 AzTA Outstanding Transit Organization Excellence Award
- 2009 Phoenix Community Alliance Center City Starr Award



#### **Operations**

#### Operations

- Monday thru Thursday 4 a.m. midnight
- Friday 4:40 a.m. to 3 a.m. (Sat)
- Saturday 4:30 a.m. to 3 a.m. (Sun)
- Sunday 4:30 a.m. to midnight

#### Frequency –

- Weekdays 10 mins peak hours -20 mins off peak
- Saturday 15 mins peak hours 20 mins off peak
- Sunday and Holiday -20 mins all hours of day



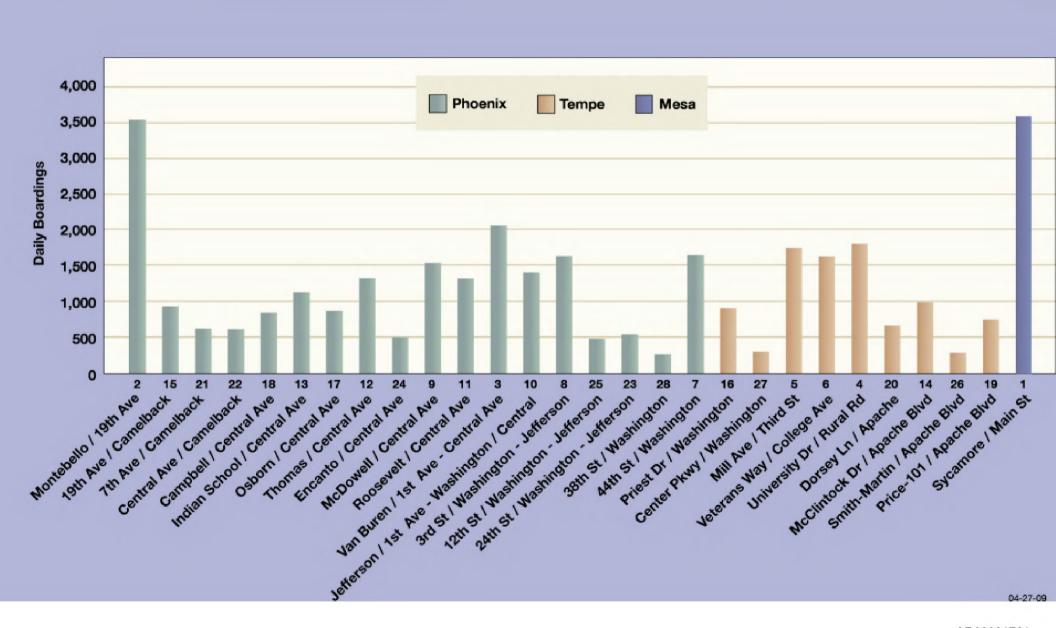
## Ridership

	Forecast for End of Year 1	January	February	March	April	May
Average Weekday	26,090	30,582	35,277	34,376	37,232	33,553
Average Saturday	20,800	31,331	31,417	28,537	32,720	27,176
Average Sunday & Holiday	11,267	22,603	19,212	20,508	22,694	20,219
Total Monthly Riders		911,883	908,052	972,962	1,040,749	928,259



### Average Ridership

#### Daily Boardings By Station, First Quarter 2009





## Information Improvements

- New safety posters at stations
- New bicycle safety brochures
- Updated maps in vehicles







## Information Improvements

- Additional signage added
- Cigarette receptacles installed at each platform
- Warning message added to bottom of platforms









## System Improvements

- Trains and station announcements
  - Number of announcements
  - Volume adjustment
- Train tracking







#### **Proof of Payment System**

- Valid fare required before boarding
- Passengers checked at random by fare inspectors
- Inspectors can tell if your pass has been validated
- Citations: \$50-\$500 to loosing transit privileges









#### **Fare Education Efforts**

- Touch, Hold and Go signs on vehicles and fare vending machines
- Passenger assistance ambassadors







## **Fare Inspection Data**

SYSTEMWIDE	JAN	FEB	MARCH	APRIL	MAY
Inspections Conducted	81,576	69,843	146,179	168,860	160,000
Passengers w/o Fare Media	319	281	277	220	287
Citations Issued	13	159	172	148	169
Fare Evasion Rate	0.39%	0.40%	0.19%	0.13%	0.18%
Ridership	911,889	908,000	972,962	1,044,135	928,259
Percentage Inspected	8.90%	7.69%	15.02%	16.17%	17.20%



### **Connecting ASU**

- Students take classes from Tempe to downtown Phoenix
- U-Pass students can use on both the train and bus
- Travel time approx 30 min between campus







#### **Sky Harbor Connection**

- 1200 people per day are taking METRO to airport
- Free shuttle stops at all terminals
- Runs 7 days a week / mirrors train schedule
- Phoenix Sky Train coming in 2013







### **Light Rail for Events**

- 600 people in three-car trains
- 10-15% of venue attendees will ride
- Past events include NBA All-Star Event, New Years Eve Block party and ASU Graduation









## **USAC Ticketing Discussions**

- Pilot program discussion between U. S. Airways Center and METRO
- Focus: Integrate METRO ridership into ticket sales for events at US Airways Center







#### Possible Revenue

- Train wraps, floor decals, display cases and parts of the station
- Selling system or station naming rights









## **Potential Future Improvements**

- Shaded fare vending machines
- Adding additional fare vending machines
- Adding stand alone validators
- Shade canopies at park-and-rides





# Development along 20-mile Route 2004 to Present

- \$7.4 billion total investment along alignment (planned, under construction, or completed)
  - \$5.9 billion private investment
  - \$1.5 billion public investment
- 17,000+ residential units
- 9+ million square ft. commercial
- 3,200+ hotel rooms

\$1.4 billion

\$7.4 billion

Light rail investment Non-rail investments



# Development along METRO: Residential

#### 17,000+ New Units

- Metro Manor
- Century Plaza
- Tapestry on Central
- Portland Place
- 44 Monroe
- Grigio Metro



**Chateaux on Central** 



Centerpoint



44 Monroe



**Tapestry on Central** 



**Artisan Village** 



**Metro Manor** 



### Development along METRO Large Mixed-Use

#### Cityscape

- Central Ave. & Washington St.
- \$900 million project
- 1200 condominiums
- 2 boutique hotels (400 beds)
- 600,000 sf Class A office
- 250,000 sf retail/restaurant
- Groundbreaking Nov. 2007
- First phase open in 2009, project build-out in 2011



Cityscape



**Hayden Ferry Lakeside** 

#### **Hayden Ferry Lakeside**

- Master-planned waterfront 17acre site on Tempe Town Lake
- Office, Retail and Hotel Development—1M sf of Class A office
- Plaza-level restaurant / retail in three mid-rise towers and fullservice hotel
- Residential Development— Approx. 438 luxury lakefront condos
- Currently under construction with 2009 completion date



## Development along METRO Public Investment

- Translational Genomics Research Institute 2005
- Sheraton Downtown Phoenix October 2008
- Phoenix Convention Center December 2008
- ASU Downtown Campus 2006 2009
  - 15,000 students at completion
  - 1.5 million SF academic & support space
  - 4,000 student beds within 10 yrs



**ASU Downtown Campus** 



**Phoenix Convention Center** 



**Sheraton Downtown Phoenix** 



**TGEN** 



# Development along METRO Public/Private Investment: Grigio Metro

- Originally a surface park-and-ride lot
- City of Tempe engaged a private developer
- McClintock & Apache Blvd.
- Apache Blvd. redevelopment district
- 408 residential units
- 16,000 sf retail
- 300 park-and-ride spaces in an enclosed garage
- Under construction
- Completion Summer 2009







# Downtown Phoenix 2005



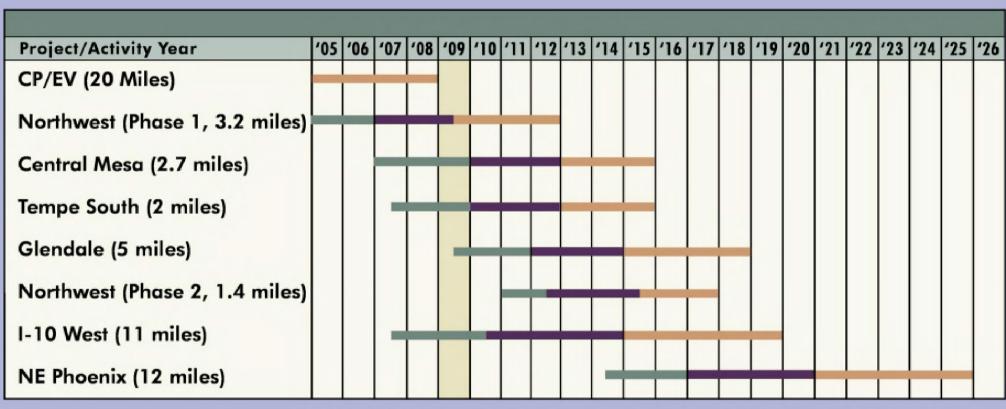


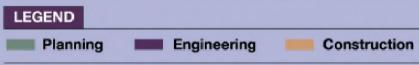
## Downtown Phoenix 2009





## Future High Capacity / Light Rail Project Schedules





Note: Dates indicate calendar year



## Future High Capacity / Light Rail 57-Mile System







# HONOLULU RAIL TRANSIT SYMPOSIUM 2009

Tuesday, June 23, 2009 • 8:00 AM – 6:00 PM • Neal Blaisdell Exhibition Hall

Join us at the state's most exciting educational exhibit about rail transit. See informational displays of trains used around the world. Learn about the lasting environmental and economic benefits rail transit has generated in other cities and how Honolulu will benefit.

#### National speakers include:



Dan Doyle, the former Deputy Minister, British Columbia Ministry of Transportation and Executive Vice President of the Vancouver Olympic Games 2010.



**Chatham Olive**, past president of the Sierra Club Charlotte who championed the LYNX system.



Joni Earl, CEO of Sound Transit, which connects the thriving Seattle area with 74 miles of train tracks and later this year will open a 16-mile light rail line.



Rick Simonetta, CEO of the nation's newest rail transit system, Valley Metro in Arizona, which carried more than a million riders in April.



Bill Millar, president of the nation's largest nonprofit transit organization: the American Public Transportation Association, representing transportation agencies across our country.



Wellington Webb, former mayor of Denver who has been a key supporter of the FasTracks transit expansion program, and President, Webb Group International.



lan Mulcahey, leads the Planning & Urban Design practice area of the Gensler design firm in London and is currently advising several cities worldwide on their Transit Oriented Development plans.

#### **REGISTRATION FORM ON BACK**

#### Did You Know?\*

- Rail transit will create 10,000 jobs a year on average during construction.
- Electrically-powered rail uses less energy than single-occupant cars and trucks and will help reduce the amount of greenhouse gases O'ahu generates.\*\*
- Rail will provide an alternative to congested roads and freeways and reduce future traffic delay.

\*Project's Draft Environmental Impact Statement

\*\*U.S. Department of Energy 2008 Transportation Data Book

 $Rapid Transit \ Division \bullet Department \ of \ Transportation \ Services \bullet City \ and \ County \ of \ Honolulu \bullet 1099 \ Alakea \ Street, 17th \ Floor, Honolulu, HI 96813 \bullet \textbf{www.honolulutransit.org}$ 





# HONOLULU RAIL TRANSIT SYMPOSIUM 2009 Admission is FREE!

Tuesday, June 23, 2009 • 8:00 AM - 6:00 PM • Neal Blaisdell Exhibition Hall

Name	
Company	
Address	
City S	tate Zip
Phone Fax _	
Email	
Reserved seating in the Pikake Room is limited. Friday, June 19. Open seating in the exhibition area was registrants. Neal Blaisdell Center event parking rate is tote bags! While supplies last.	vill be available for walk-ins and late
PLEASE MAIL OR FAX COMPLETED BY FRIDAY, JUNE 19,	
HONOLULU RAIL TRANSIT S	
P.O. BOX 893727, MILILA FAX TO: (808) 626	
If you have any questions or require special accommodation captioning, wheelchair access), please contact <b>honolulurail</b>	
Bento box lunches will be available for pre-purchase Bento includes: White Rice with Furikake, Fried Noodles, Teri	
Yes, I would like to order ber	nto(s) at \$12.00 each.
☐ Check enclosed, payable to Lych	hee Productions